



SERVICE OF VACUUM PUMP SYSTEMS
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EBARA Components Product Catalogue

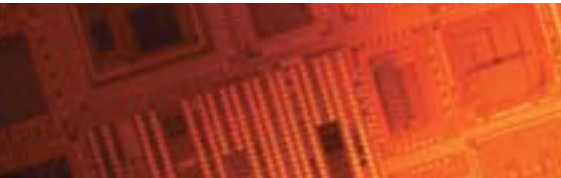
– The Total Vacuum Solution for Semiconductor Fabs –

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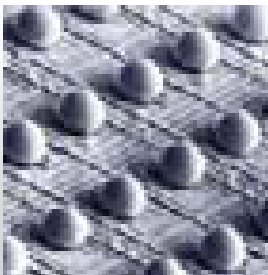
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EBARA Precision Machinery in Europe



EBARA Precision Machinery Europe is a division of EBARA Corporation in Japan. EBARA Corporation was founded in 1912. The company employs about 15,500 people with a turnover of approx. US \$ 5.0 billion. EBARA Corporation provides a wide range of technologies in aqueous, air and environmental applications and drives product development to comply with its zero emission philosophy.

EBARA Precision Machinery's (EPM) scope of products is serving the needs for manufacturing integrated circuits (IC) technology. The product range covers vacuum pumps for front end equipment, abatement systems up to polishing tools and plating tools on the back end side of the manufacturing process. Its product offering is rooted in Ebara's vast scope of advanced technologies and fits in the company philosophy by exceeding the industry's lowest cost of ownership and highest uptime requirements.



EBARA Precision Machinery Europe

EBARA Precision Machinery Europe was founded in 1994. EBARA Precision Machinery Europe (EPME) is headquartered in Hanau/Germany. EPME achieves annual sales of about 60 Mio. Euro and employs about 120 people (2004).

Our offices in Dresden/Germany, Alsdorf/Germany, Meyreuil/France, Newcastle/UK, Dublin/Ireland, Migdal Haemek/Israel, Grenoble/France, Evry/France, Regensburg/Germany and Graz/Austria are operated in close vicinity to our customers to provide sales, service, installation, maintenance, consultancy and parts services. The customers are supported in their local languages and according to their local standards.

Our advanced overhaul facility in Livingston provides failure analysis and decontamination services and allows for fast repair of dry and turbomolecular pumps of the European installations. With our unparalleled technical support and service we ensure the customer the highest standard of reliability and maximum up-time at the lowest cost of ownership.

The purpose of this catalogue is to serve as a quick reference for vacuum components available in Europe with beginning of 2005.



Our Components Products

EBARA Precision Machinery products are manufactured at state-of-the-art production facilities in Fujisawa near Tokyo/Japan and at EBARA Technologies in Sacramento/CA, USA. These facilities fully comply with ISO 9001 standards and the Fujisawa facility also with ISO 14001 standards. EBARA's products provide CE marking and 400 V power supply as required in the European market.

Based on the high reliability and the leading edge technology the demand for EBARA's vacuum pumps and point-of-use-abatement systems has continuously increased. EBARA offers a full line of components inherently designed for the use in the semiconductor industry but not limited to it. For instance exist numerous spin off applications such as LCD-manufacturing and the Nano-technology where our components products are applied with benefit.

Our Components Service

The output quality and quantity in semiconductor fabs depends largely on the smooth working of thousands of different components of machinery. Vacuum and things around it is not of high importance to the quality of the final product. It is our mission to take care of everything what is around the vacuum installations: Managing the complete "basement" is taking care of vacuum, abatement, heaters, pipes, valves, but it also means

- Hook Up and Testing
- Continuous Operations
- Customer Support

The service offering includes:

- spare parts
- overhaul service
- installation service field service on demand
- preventive maintenance contracts
- failure analysis and decontamination
- fab planning support, process expertise
- pump monitoring with data collection and evaluation
- 7 days a week, 24 hours service contracts,
- 24 hours call service



EBARA in France

To have the overall responsibility is our business, day in, day out guaranteeing coverage 24 hours a day, 365 days a year with maximum efficiency. From the design phase of a fab until the years of continuous production, our experts are keen to be the reliable partners in what we regard as vacuum and its application. EBARA Precision Machinery's reputation in Europe is based on its outstanding service coverage, its dense network of service locations in the vicinity to our customers, the service workers' long-time experience and their reliable, in-time service work.



Center of Technical Expertise (CTE)

The daily business of supporting the vacuum and associated equipment in a modern wafer fabrication facility can only be achieved by the technical expertise of experienced engineers. A fast response team of engineers dedicated to customer support is able to offer vacuum solutions, configure vacuum and process related equipment to specific applications and to resolve critical situations in the shortest possible time frame, thus guaranteeing customer satisfaction.



Our Dresden Center of Technical Expertise is located in the heart of Continental Europe with the added benefit of an international airport situated only 10 minutes from the office enabling easy access between its satellite offices and customers situated all-over Europe. Engineers are accessible on all engineering and application matters using the modern extensive workshop area and appropriate technical equipment for quick analysis and repair.



Full Service Center (FSC)

Vacuum Dry Pumps, with proven reliability on severe semiconductor processes still require to be serviced to ensure trouble free running. Experience in handling of contaminated process dry pumps from the beginning with a decontamination procedure, reassembling and final quality inspection is required to maintain the proven reliability on all vacuum processes.

Our fully equipped Service Center, located at Livingston, Scotland, employs highly skilled vacuum engineers to maintain and refurbish vacuum dry pumps and associated products within a guarantee turnaround time without the loss of quality to workmanship. This is achieved by working on a shift pattern including weekend work to ensure a smooth turnaround time to meet a demanding market. Internal global information always ensures the highest standard of workmanship and quality to be maintained throughout Europe.

Training courses for internal and external students make vacuum and its application understandable and applicable.



EBARA's Dry Pump Family

DRY PUMPS

EBARA is a world leader in the design and manufacturing of dry mechanical pumps. EBARA's dry pumps feature highest reliability, low noise and vibration and lowest cost of ownership. They are available with a wide range of pumping speeds and different configurations for special semiconductor applications.

A-SERIES

The A-Series dry pumps represent the currently installed pumps of EBARA's comprehensive range of products in Europe. They are equipped with microprocessor control with a hand held LCD control and display unit to control the process parameters of the pumps. Optionally monitoring systems are available.

AA-SERIES

AA-Series dry pumps offer the lowest cost of ownership of Ebara's dry pump product lines. They are designed for light duty applications.

AAS-SERIES

The AAS-Series dry pumps - dual stage screw pumps – offer low cost of ownership for heavy duty processes.

08-09 EBARAs Dry Pump Family

10-21 EBARAs Dry Pumps Series A

- 10-11** Dry Pumps A07
- 12-13** Dry Pumps A10S
- 14-15** Dry Pumps A25S
- 16-17** Dry Pumps A30W
- 18-19** Dry Pumps A70W
- 20-21** Dry Pumps A150W

22-37 Vacuum Dry Pumps Series AA

- 22-23** Dry Pumps AAL10
- 24-25** Dry Pumps AA10
- 26-27** Dry Pumps AA20
- 28-29** Dry Pumps AA30
- 30-31** Dry Pumps AA40W
- 32-33** Dry Pumps AA70W
- 34-35** Dry Pumps AA100W
- 36-37** Dry Pumps AA200W

38-49 Vacuum Dry Pumps AAS

- 38-39** Dry Pumps AAS10N
- 40-41** Dry Pumps AAS20N
- 42-43** Dry Pumps AAS40WN
- 44-45** Dry Pumps AAS70WN
- 46-47** Dry Pumps AAS100WN
- 48-49** Dry Pumps AAS200

50-51 Vacuum Dry Pumps Series ESR

- 52-53** Dry Pumps ESR 20N
- 54-55** Dry Pumps ESR 80WN
- 56-57** Dry Pumps ESR 200WN

58-59 Vacuum Dry Pumps Series EST

- 60-61** Dry Pumps EST25N
- 62-63** Dry Pumps EST100WN
- 64-65** Dry Pumps EST200WN
- 66-67** Dry Pumps EST300WN
- 68-69** Dry Pumps EST500WN

70-71 Vacuum Dry Pumps Series ESA

- 72-73** Dry Pumps ESA300WN

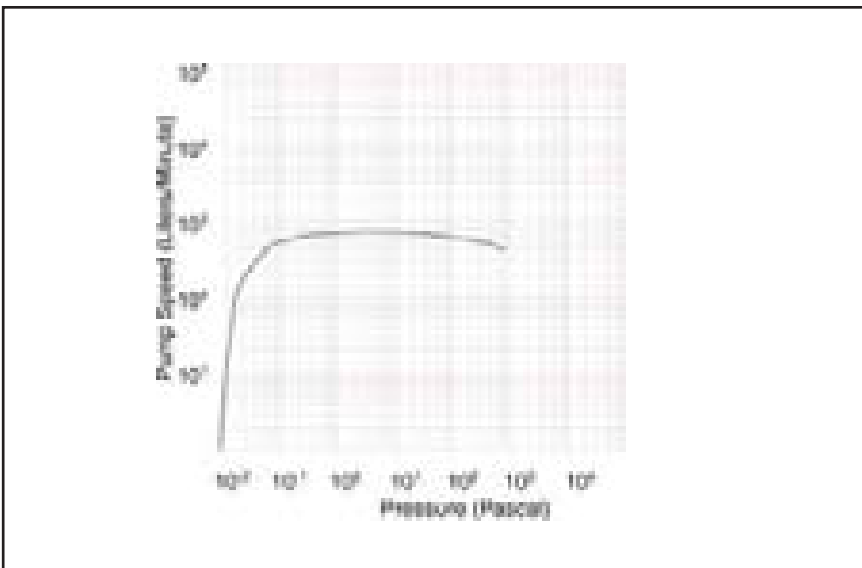
74-75 Vacuum Dry Pumps Series VSO

- 76-77** Vacuum Dry Pumps VOS100/100P



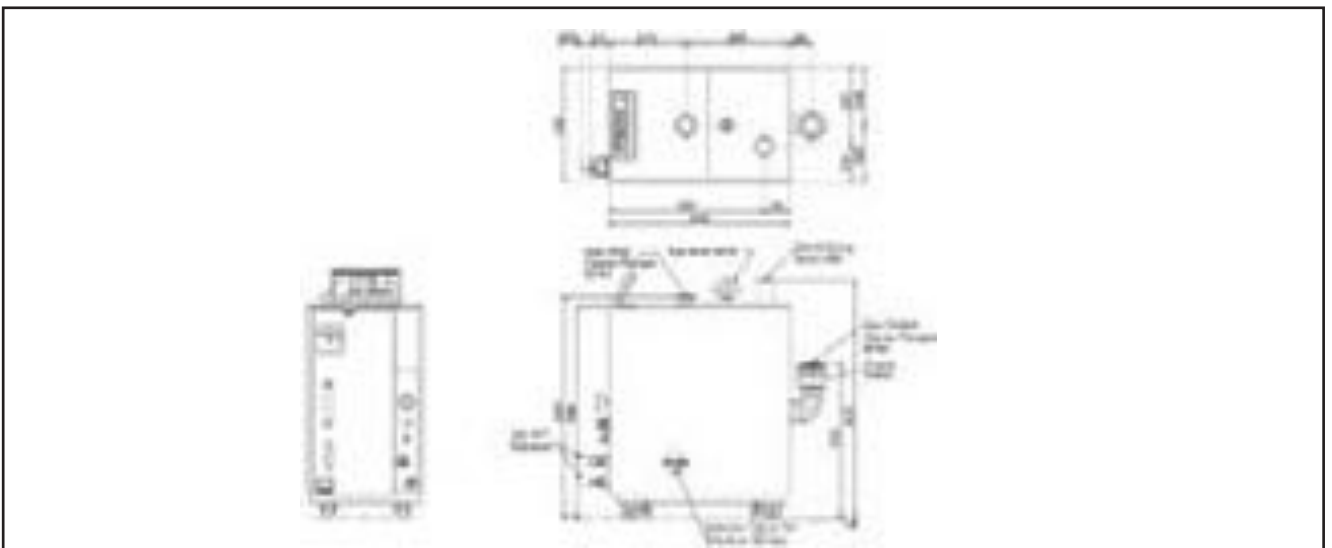
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
- Canned motor
- Low service requirements
- Control panel for monitoring operating conditions



Customer Benefits

- Very low nitrogen consumption for purging
- Clean room compatible
- Low service requirements
- Compact size and small footprint



Specification A 07

Pumping speed (N2) 50/60 Hz	l/min.	700/833
Pumping speed (N2) 50/60 Hz	m ³ /h	42/50
Ultimate pressure 50/60 Hz	mbar	1x10 ⁻² /1x10 ⁻²
Ultimate pressure 50/60 Hz	Pa	1.1/1.0
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	9-11
Nitrogen Consumption	Pa m ³ /sec	15-19
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	1.5
Weight, approx.	kg	150
Sizes (LxWxH)	mm	500x340x590
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

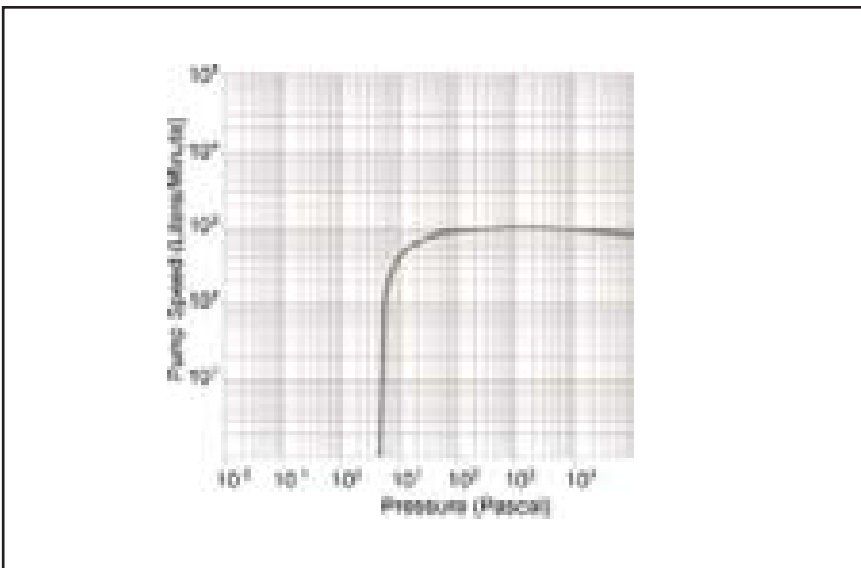
Ordering Data Series A 07

1	A07V	811-0007-2-000-00-00	Vacuum Dry Pump A07V, 200V, 50/60 Hz
2	A07V-B	811-0007-2-000-01-00	Vacuum Dry Pump A07V-B, 200V, 50/60 Hz, Basic Version
3	A07V	811-0007-3-000-00-00	Vacuum Dry Pump A07V, 380V, 50/60 Hz
4	A07V-B	811-0007-3-000-01-00	Vacuum Dry Pump A07V-B, 380V, 50/60 Hz, Basic Version



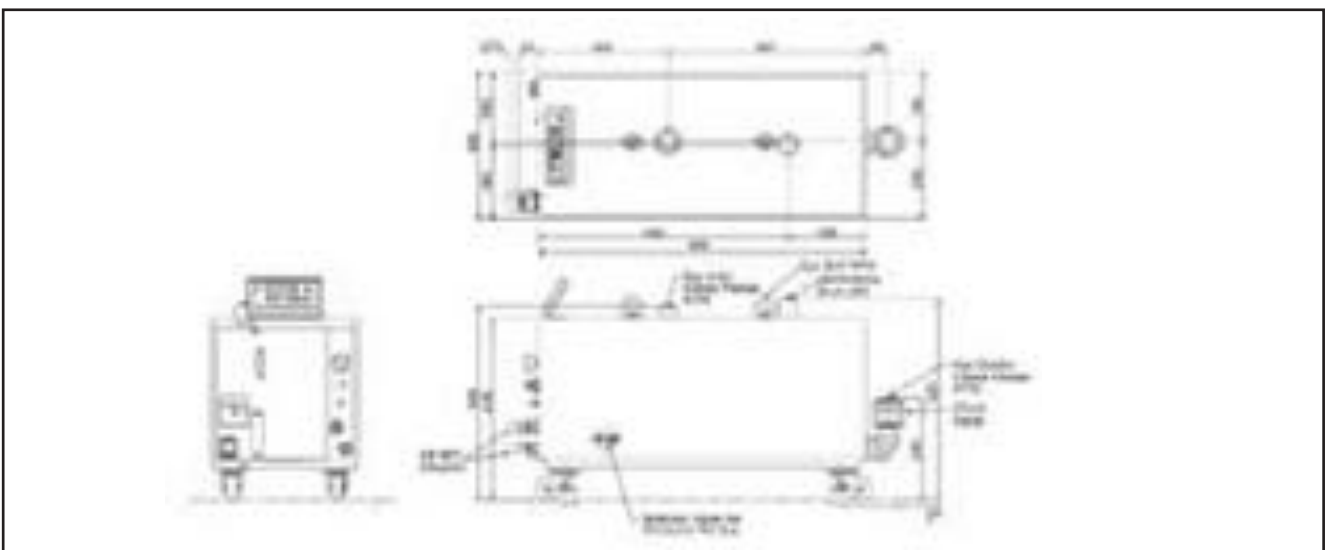
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
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- Control panel for monitoring operating conditions



Customer Benefits

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Specification A10S

Pumping speed (N2) 50/60 Hz	l/min.	1000/1200
Pumping speed (N2) 50/60 Hz	m ³ /h	60/72
Ultimate pressure 50/60 Hz	mbar	5x10 ⁻² /4x10 ⁻²
Ultimate pressure 50/60 Hz	Pa	5.3/4.0
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	10-12
Nitrogen Consumption	Pa m ³ /sec	17-20
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	2.2
Weight, approx.	kg	220
Sizes (LxWxH)	mm	840x394x470
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

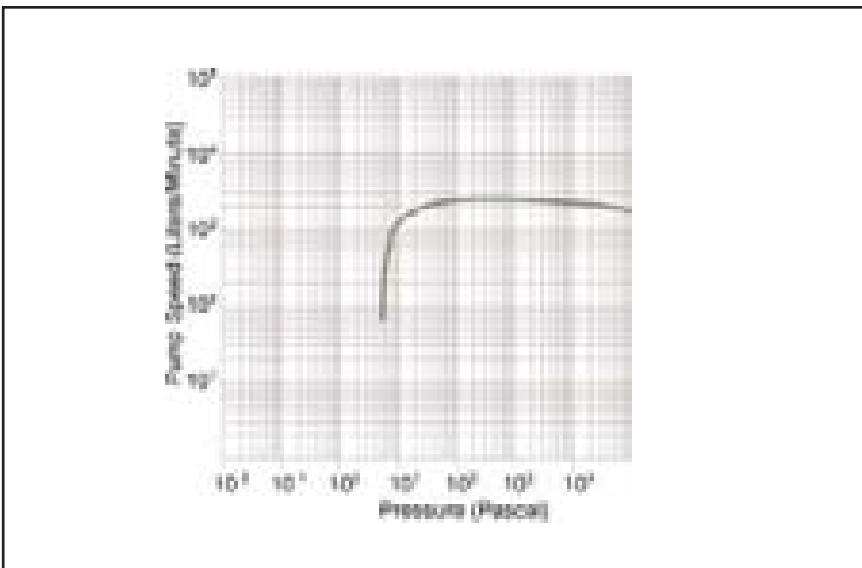
Ordering Data Series A10S

1	A10S	811-0010-2-000-00-00	Vacuum Dry Pump A10S, 200V, 50/60 Hz
2	A10S	811-0010-3-000-00-00	Vacuum Dry Pump A10S, 380V, 50/60 Hz
3	A10S	811-0010-2-E00-00-00	Vacuum Dry Pump A10S, 200V, 50/60 Hz, two stage Exhaust Pressure Switch
4	A10S	811-0010-3-E00-00-00	Vacuum Dry Pump A10S, 380V, 50/60 Hz, two stage Exhaust Pressure Switch



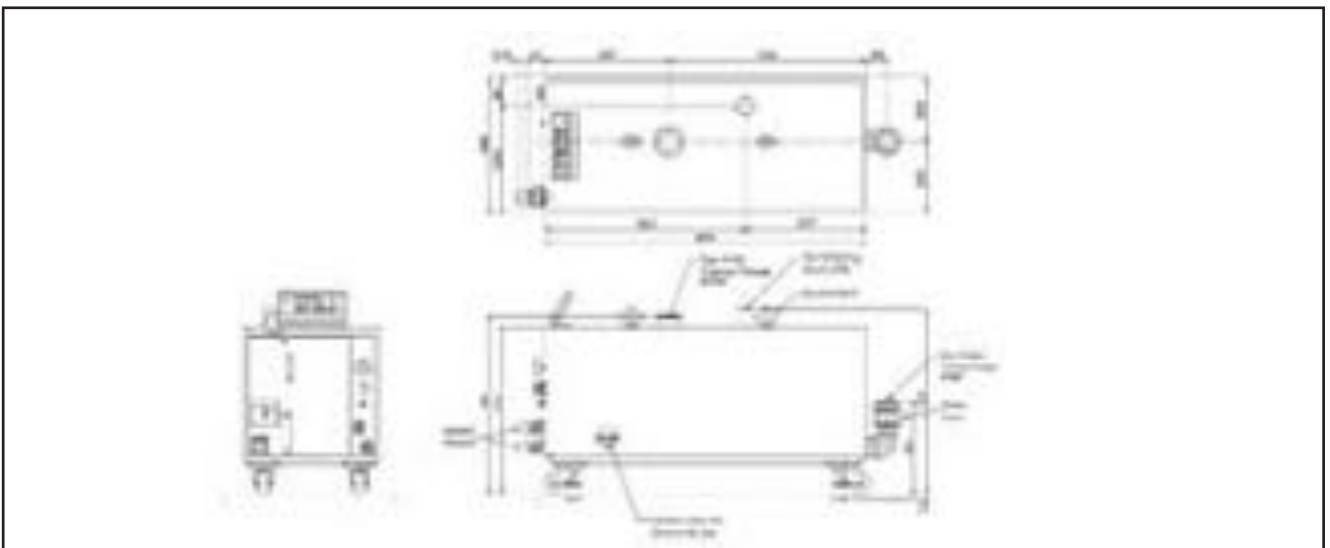
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
- Canned motor
- Low service requirements
- Control panel for monitoring operating conditions



Customer Benefits

- Very low nitrogen consumption for purging
- Clean room compatible
- Low service requirements
- Compact size and small footprint



Specification A25S

Pumping speed (N2) 50/60 Hz	l/min.	2500/3000
Pumping speed (N2) 50/60 Hz	m ³ /h	150/180
Ultimate pressure 50/60 Hz	mbar	5x10 ⁻² , 4x10 ⁻²
Ultimate pressure 50/60 Hz	Pa	5.3/4.0
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	10-12
Nitrogen Consumption	Pa m ³ /sec	17-20
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3.7
Weight, approx.	kg	240
Sizes (LxWxH)	mm	900x394x470
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

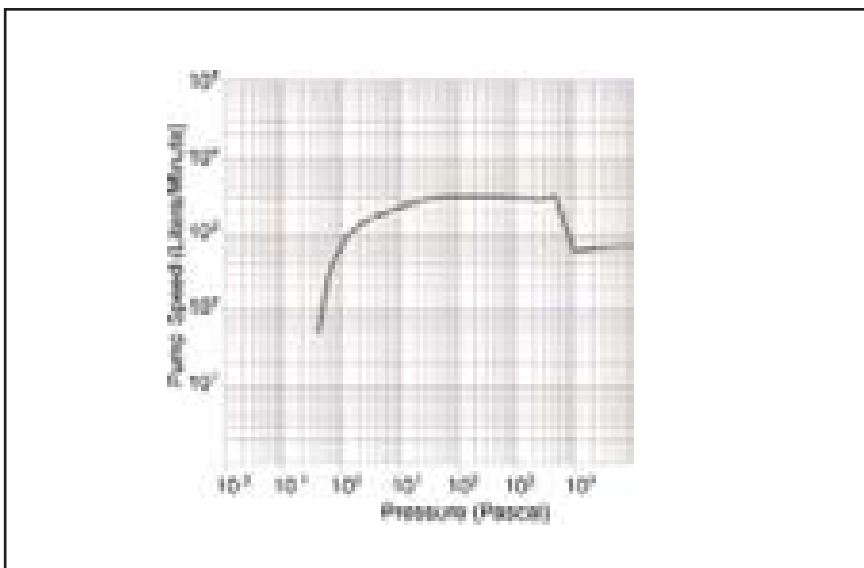
Ordering Data Series A25S

1	A25S	811-0025-2-000-00-00	Vacuum Dry Pump A25S, 200V, 50/60 Hz
2	A25S	811-0025-3-000-00-00	Vacuum Dry Pump A25S, 380V, 50/60 Hz
3	A25S	811-0025-2-E00-00-00	Vacuum Dry Pump A25S, 200V, 50/60 Hz, two stage Exhaust Pressure Switch
4	A25S	811-0025-3-E00-00-00	Vacuum Dry Pump A25S, 380V, 50/60 Hz, two stage Exhaust Pressure Switch



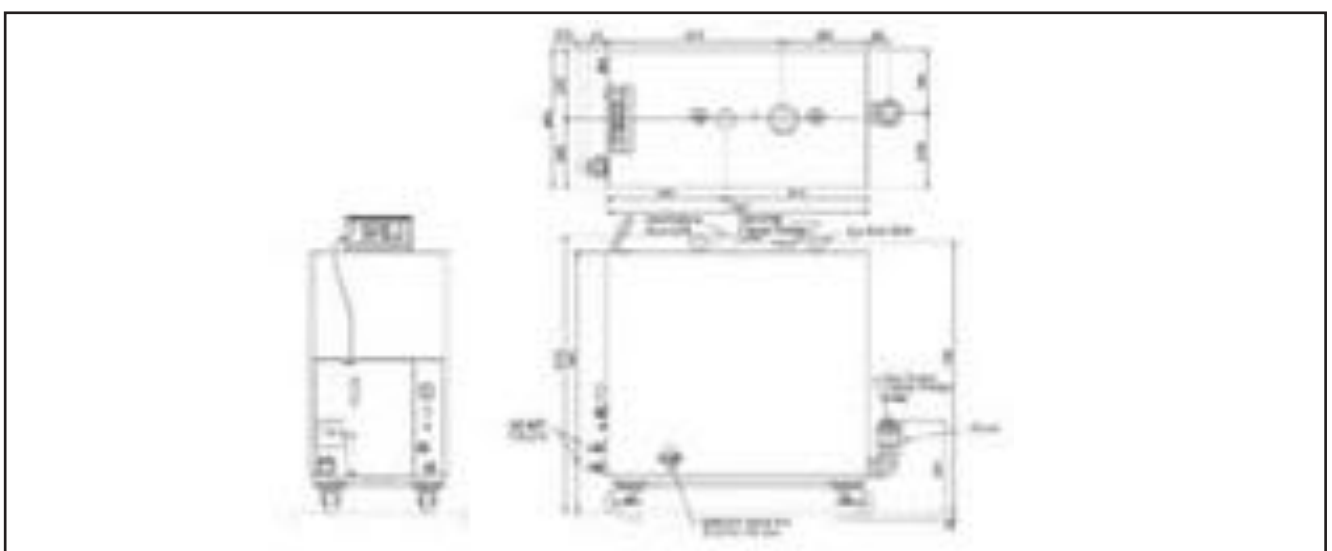
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
- Canned motor
- Low service requirements
- Control panel for monitoring operating conditions



Customer Benefits

- Very low nitrogen consumption for purging
- Clean room compatible
- Low service requirements
- Compact size and small footprint



Specification A30W

Pumping speed (N2) 50/60 Hz	l/min.	3000/3600
Pumping speed (N2) 50/60 Hz	m ³ /h	180/216
Ultimate pressure 50/60 Hz	mbar	4x10 ⁻³ , 3x10 ⁻³
Ultimate pressure 50/60 Hz	Pa	0.4/0.3
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	10-13
Nitrogen Consumption	Pa m ³ /sec	17-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	1.5+2.2
Weight, approx.	kg	330
Sizes (LxWxH)	mm	895x400x485
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

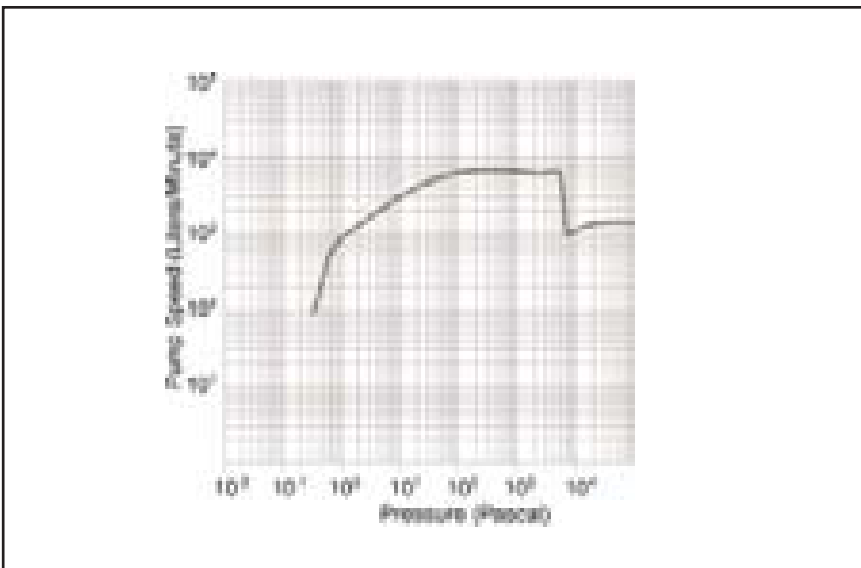
Ordering Data Series A30W

1	A30W	811-0030-2-000-00-00	Vacuum Dry Pump A30W, 200V, 50/60 Hz
2	A30W	811-0030-3-000-00-00	Vacuum Dry Pump A30W, 380V, 50/60 Hz
3	A30W	811-0030-2-E00-00-00	Vacuum Dry Pump A30W, 200V, 50/60 Hz, two stage Exhaust Pressure Switch
4	A30W	811-0030-3-E00-00-00	Vacuum Dry Pump A30W, 380V, 50/60 Hz, two stage Exhaust Pressure Switch



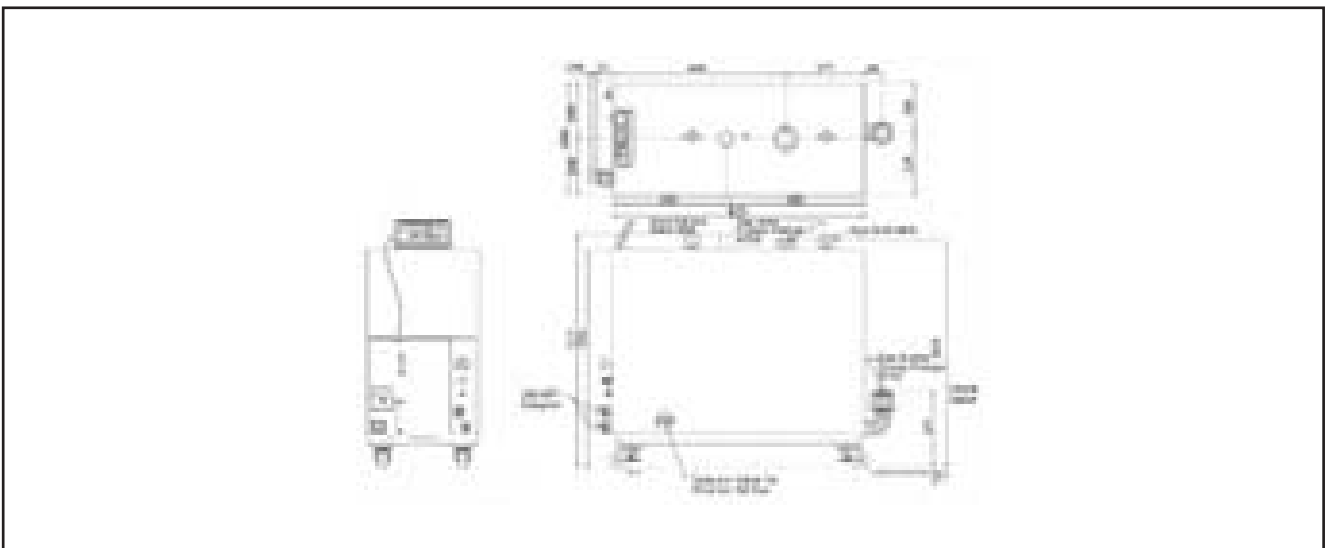
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
- Canned motor
- Low service requirements
- Control panel for monitoring operating conditions



Customer Benefits

- Very low nitrogen consumption for purging
- Clean room compatible
- Low service requirements
- Compact size and small footprint



Specification A70W

Pumping speed (N2) 50/60 Hz	l/min.	7000/8400
Pumping speed (N2) 50/60 Hz	m ³ /h	420/504
Ultimate pressure 50/60 Hz	mbar	3x10 ⁻³ , 1.3x10 ⁻³
Ultimate pressure 50/60 Hz	Pa	0.3/0.13
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	14-16
Nitrogen Consumption	Pa m ³ /sec	24-27
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	2.2+3.7
Weight, approx.	kg	380
Sizes (LxWxH)	mm	825x400x760
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

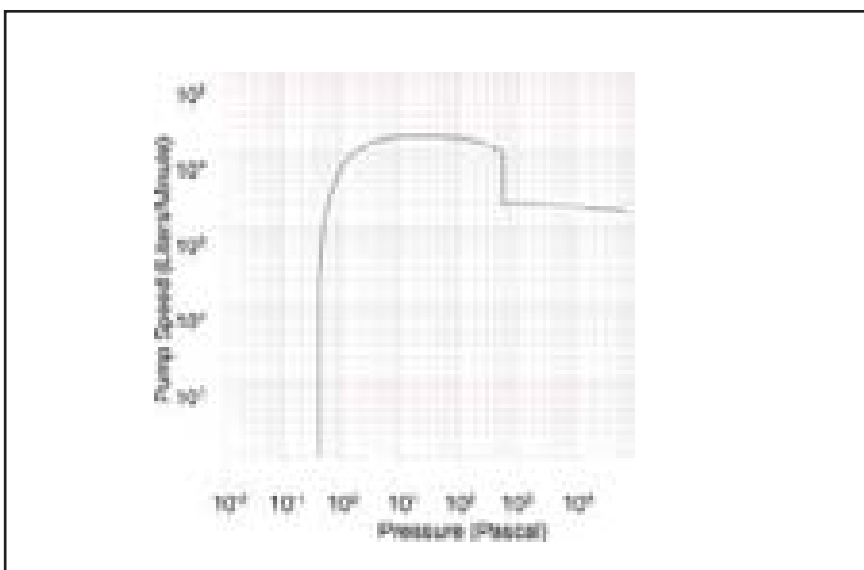
Ordering Data Series A70W

1	A70W	811-0070-2-000-00-00	Vacuum Dry Pump A70W, 200V, 50/60 Hz
2	A70W	811-0070-3-000-00-00	Vacuum Dry Pump A70W, 380V, 50/60 Hz
3	A70W	811-0070-2-E00-00-00	Vacuum Dry Pump A70W, 200V, 50/60 Hz, two stage Exhaust Pressure Switch
4	A70W	811-0070-3-E00-00-00	Vacuum Dry Pump A70W, 380V, 50/60 Hz, two stage Exhaust Pressure Switch



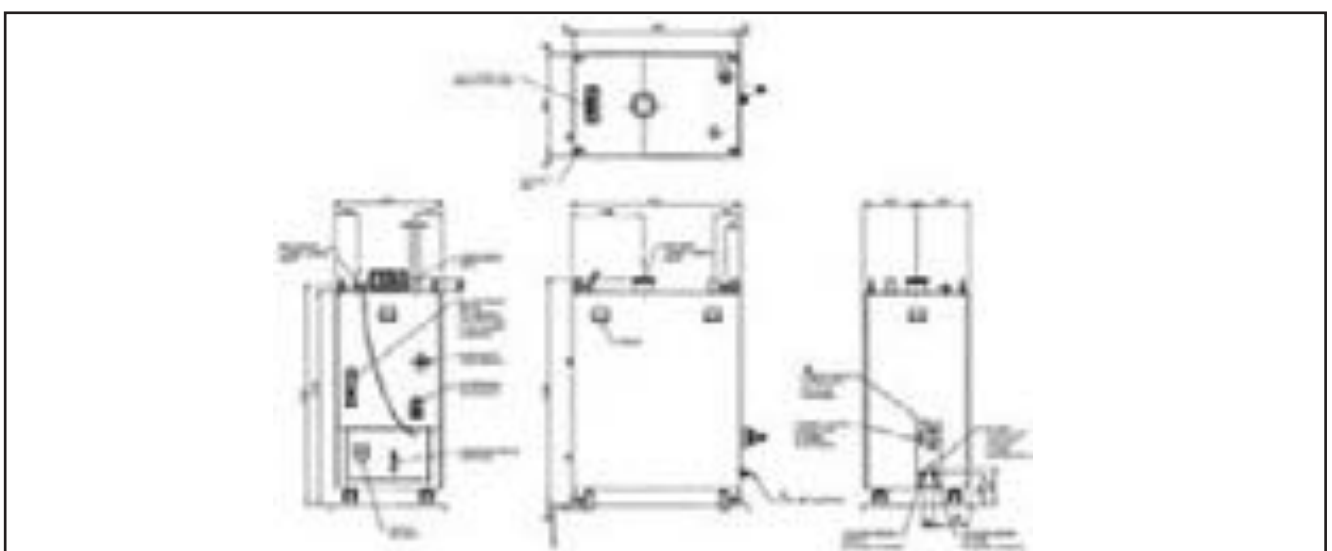
Technical Characteristics

- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Corrosion resistant materials-stainless steel coolers, water circuits
- High reliability even for harsh processes
- Efficient interstage coolers for LPCVD nitride process
- Canned motor
- Low service requirements
- Control panel for monitoring operating conditions



Customer Benefits

- Very low nitrogen consumption for purging
- Clean room compatible
- Low service requirements
- Compact size and small footprint



Specification A150W

Pumping speed (N2) 50/60 Hz	l/min.	15,000/18,000
Pumping speed (N2) 50/60 Hz	m ³ /h	900/1080
Ultimate pressure 50/60 Hz	mbar	5x10 ⁻³ /5x10 ⁻³
Ultimate pressure 50/60 Hz	Pa	0.53/0.53
Water Consumption	l/min.	3.5
Nitrogen Consumption	SLM	18
Nitrogen Consumption	Pa m ³ /sec	30
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3.7+3.7
Weight, approx.	kg	530
Sizes (LxWxH)	mm	900x560x1200
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series A150W

1	A150W-M	811-0150-2-OWM-00-00	Vacuum Dry Pump A150W, 200V, 50/60 Hz, Manifold Cooler
2	A150W-T	811-0150-2-OWT-00-00	Vacuum Dry Pump A150W, 200V, 50/60 Hz, Interstage Coolers
3	A150W-M	811-0150-2-EWM-00-00	Vacuum Dry Pump A150W, 200V, 50/60 Hz, Manifold Cooler, two stage Exhaust Pressure Switch
4	A150W-T	811-0150-2-EWT-00-00	Vacuum Dry Pump A150W, 200V, 50/60 Hz, interstage Coolers, two stage Exhaust Pressure Switch
5	A150W-M	811-0150-3-OWM-00-00	Vacuum Dry Pump A150W, 380V, 50/60 Hz, Manifold Cooler Vacuum Dry Pump A25S, 200V, 50/60 Hz
6	A150W-T	811-0150-3-OWT-00-00	Vacuum Dry Pump A150W, 380V, 50/60 Hz, Interstage Coolers
7	A150W-M	811-0150-3-EWM-00-00	Vacuum Dry Pump A150W, 380V, 50/60 Hz, Manifold Cooler, two stage Exhaust Pressure Switch
8	A150W-T	811-0150-3-EWT-00-00	Vacuum Dry Pump A150W, 380V, 50/60 Hz, interstage Coolers, two stage Exhaust Pressure Switch

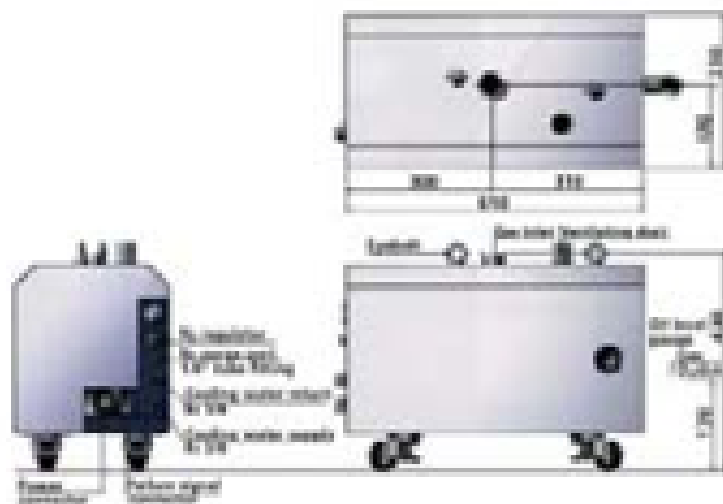
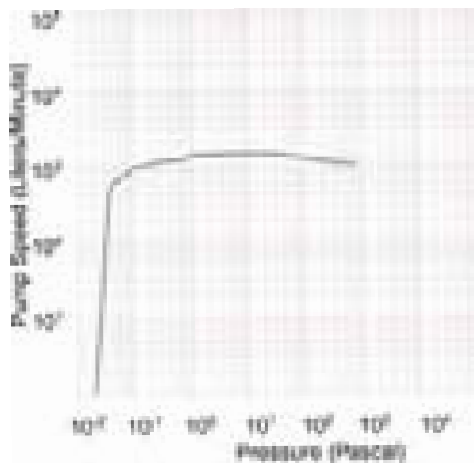


Technical Characteristics

- DC Motor
- Low Energy consumption
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time



Specification AAL10

Pumping speed (N2)	l/min.	1300
Pumping speed (N2)	m ³ /h	78
Ultimate pressure	mbar	3x10 ⁻²
Ultimate pressure	Pa	2.7
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	2
Nitrogen Consumption	Pa m ³ /sec	3.4
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3
Weight, approx.	kg	100
Sizes (LxWxH)	mm	670x310x430
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAL10

1	AAL10	812-0010-2-LL0-00-00	Vacuum Dry Pump AAL10, 200V, 50/60 Hz, Load Lock
2	AAL10	812-0010-3-LL0-00-00	Vacuum Dry Pump AAL10, 380V, 50/60 Hz, Load Lock

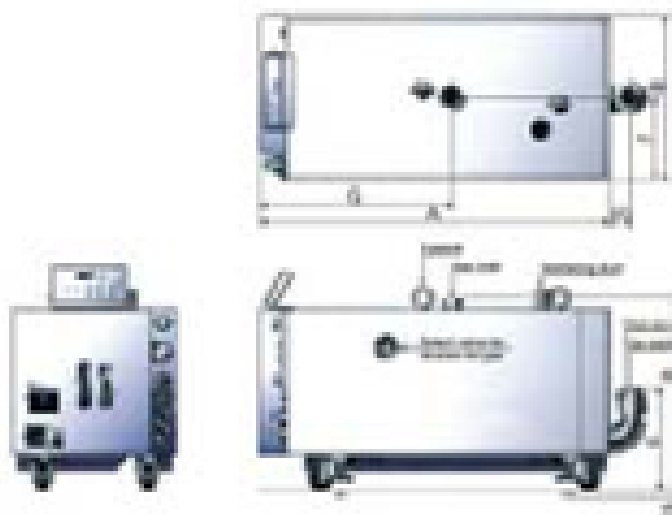
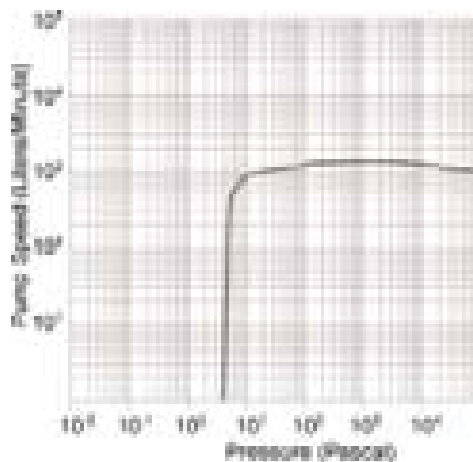


Technical Characteristics

- DC motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA10

Pumping speed (N2)	l/min.	1300
Pumping speed (N2)	m ³ /h	78
Ultimate pressure	mbar	3x10 ⁻²
Ultimate pressure	Pa	2.7
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3
Weight, approx.	kg	130
Sizes (LxWxH)	mm	825x380x445
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AA10

1	AA10	812-0010-2-000-00-00	Vacuum Dry Pump AA10, 200V, 50/60 Hz
2	AA10-H	812-0010-2-00H-00-00	Vacuum Dry Pump AA10-H, 200V, 50/60 Hz, Horizontal Outlet
3	AA10N	812-0010-2-0N0-00-00	Vacuum Dry Pump AA10N, 200V, 50/60 Hz, Corrosion Resist
4	AA10N-H	812-0010-2-0NH-00-00	Vacuum Dry Pump AA10N-H, 200V, 50/60 Hz, Corrosion Resist Horizontal Outlet
5	AA10N-H	812-0010-2-ENH-00-00	Vacuum Dry Pump AA10N-H, 200V, 50/60 Hz, Corrosion Resist Horizontal Outlet, with Exhaust Pressure Sensor
6	AA10	812-0010-3-000-00-00	Vacuum Dry Pump AA10, 380V, 50/60 Hz
7	AA10-H	812-0010-3-00H-00-00	Vacuum Dry Pump AA10-H, 380V, 50/60 Hz, Horizontal Outlet
8	AA10N	812-0010-3-0N0-00-00	Vacuum Dry Pump AA10N, 380V, 50/60 Hz, Corrosion Resist
9	AA10N-H	812-0010-3-0NH-00-00	Vacuum Dry Pump AA10N-H, 380V, 50/60 Hz, Corrosion Resist Horizontal Outlet
10	AA10N-H	812-0010-3-ENH-00-00	Vacuum Dry Pump AA10N-H, 380V, 50/60 Hz, Corrosion Resist Horizontal Outlet, with Exhaust Pressure Sensor

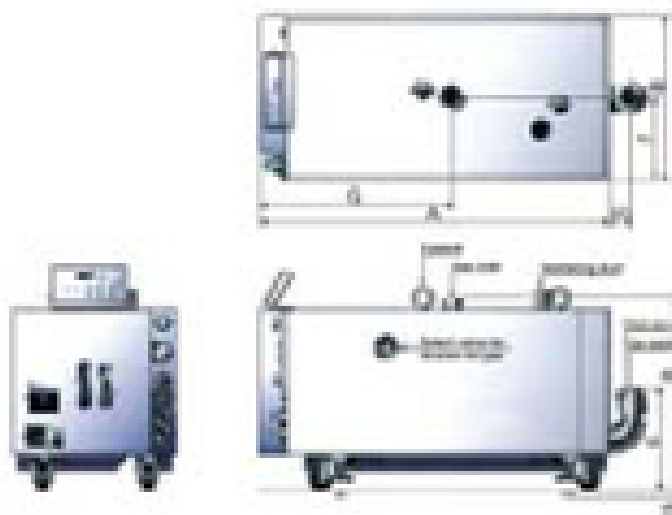
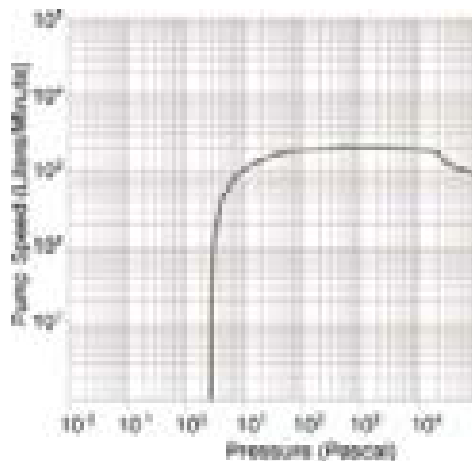


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO₂ Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA20

Pumping speed (N2)	l/min.	2000
Pumping speed (N2)	m ³ /h	120
Ultimate pressure	mbar	2.5x10 ⁻²
Ultimate pressure	Pa	2.5
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3
Weight, approx.	kg	140
Sizes (LxWxH)	mm	865x380x445
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AA20

1	AA20	812-0020-2-000-00-00	Vacuum Dry Pump AA20, 200V, 50/60 Hz,
2	AA20-H	812-0020-2-00H-00-00	Vacuum Dry Pump AA20-H, 200V, 50/60 Hz, Horizontal Outlet
3	AA20N-H	812-0020-2-ENH-00-00	Vacuum Dry Pump AA20N-H, 200V, 50/60 Hz, Corrosion Resist, Horizontal Outlet, with Exhaust Pressure Sensor
4	AA20-H	812-0020-3-00H-00-00	Vacuum Dry Pump AA20-H, 380V, 50/60 Hz, Horizontal Outlet,

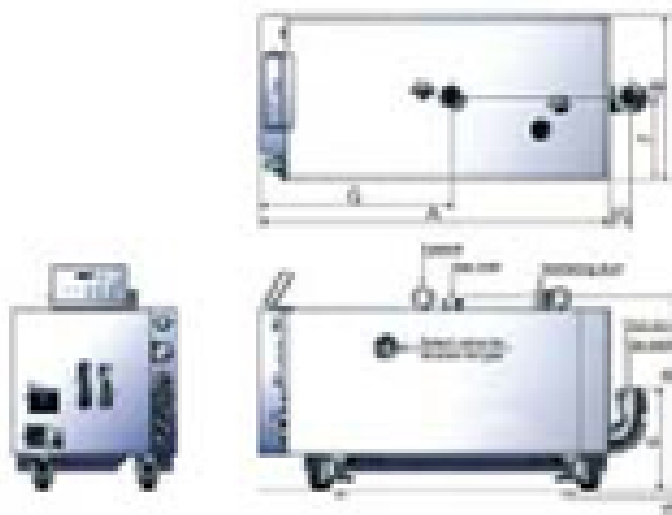
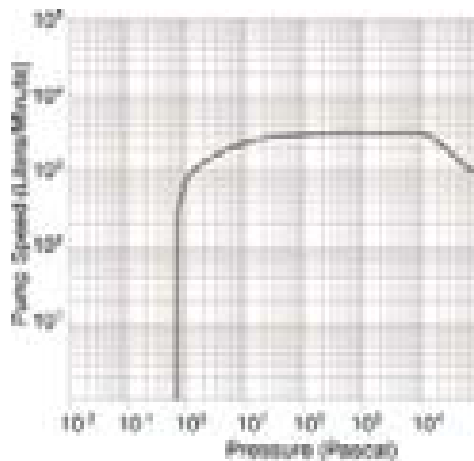


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA30

Pumping speed (N2)	l/min.	3000
Pumping speed (N2)	m ³ /h	180
Ultimate pressure	mbar	6x10 ⁻³
Ultimate pressure	Pa	0.6
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	3
Weight, approx.	kg	190
Sizes (LxWxH)	mm	610x310x430
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

Ordering Data Series AA30

1	AA30	812-0030-2-000-00-00	Vacuum Dry Pump AA30, 200V, 50/60 Hz,
2	AA30N-H	812-0030-2-ENH-00-00	Vacuum Dry Pump AA30N-H, 200V, 50/60 Hz, Corrosion Resist, Horizontal Outlet, with Exhaust Pressure Sensor
3	AA30	812-0030-3-000-00-00	Vacuum Dry Pump AA30, 380V, 50/60 Hz,
4	AA30N-H	812-0030-3-ENH-00-00	Vacuum Dry Pump AA30N-H, 380V, 50/60 Hz, Corrosion Resist, Horizontal Outlet, with Exhaust Pressure Sensor

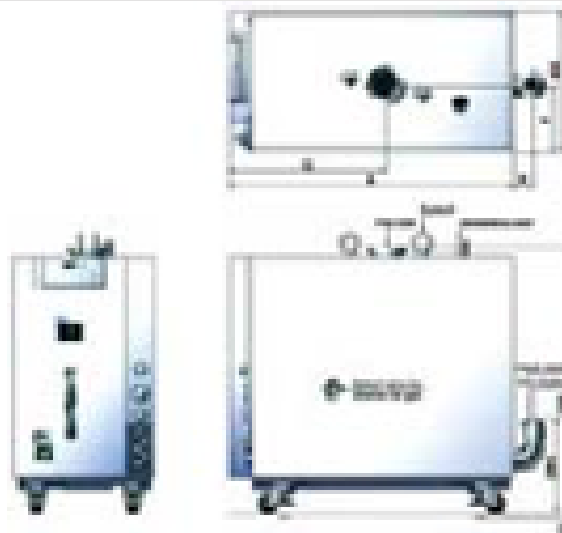
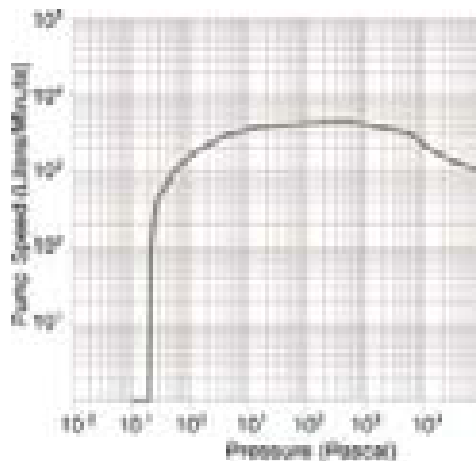


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA40W

Pumping speed (N2)	l/min.	4200
Pumping speed (N2)	m ³ /h	252
Ultimate pressure	mbar	2x10 ⁻³
Ultimate pressure	Pa	0.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	4.5
Weight, approx.	kg	240
Sizes (LxWxH)	mm	610x310x430
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

Ordering Data Series AA40W

1	AA40WN-H	812-0040-2-0NH-00-00	Vacuum Dry Pump AA40WN-H, 200V, 50/60 Hz, Corrosion Resist, Horizontal Outlet,
2	AA40WN-H	812-0040-3-0NH-00-00	Vacuum Dry Pump AA40WN-H, 380V, 50/60 Hz, Corrosion Resist, Horizontal Outlet,

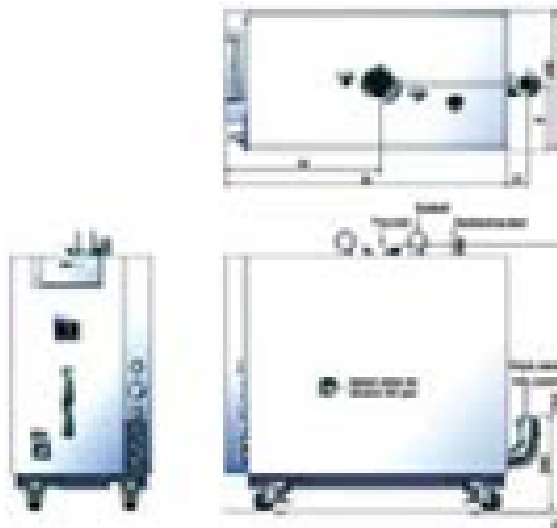
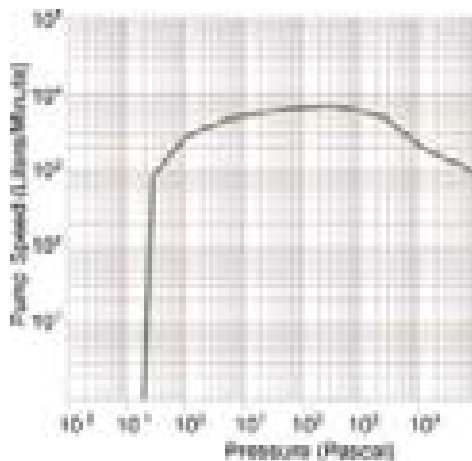


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA70W

Pumping speed (N2)	l/min.	7000
Pumping speed (N2)	m ³ /h	420
Ultimate pressure	mbar	2x10 ⁻³
Ultimate pressure	Pa	0.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	5.5
Weight, approx.	kg	240
Sizes (LxWxH)	mm	610x310x430
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

Ordering Data Series AA70W

1	AA70W	812-0070-2-000-00-00	Vacuum Dry Pump AA70W0, 200V, 50/60 Hz,
2	AA70W-H	812-0070-2-E0H-00-00	Vacuum Dry Pump AA70W-H, 200V, 50/60 Hz, Horizontal Outlet, with Exhaust Pressure Sensor
3	AA70WN-H	812-0070-2-ENH-00-00	Vacuum Dry Pump AA70WN-H, 200V, 50/60 Hz, Corrosion Resist, Horizontal Outlet, with Exhaust Pressure Sensor
4	AA70WN-H	812-0070-3-ENH-00-00	Vacuum Dry Pump AA70WN-H, 380V, 50/60 Hz, Corrosion Resist, Horizontal Outlet, with Exhaust Pressure Sensor

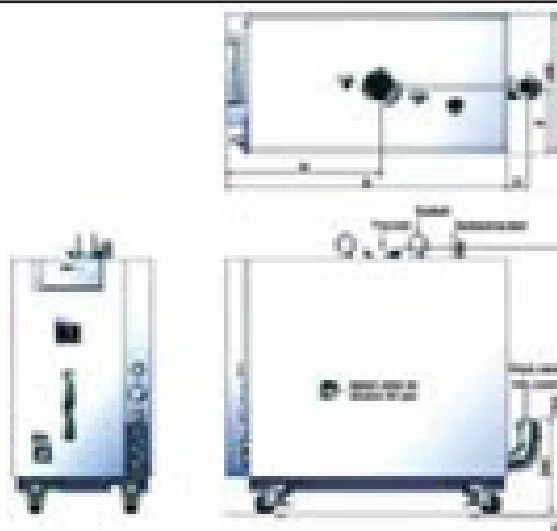
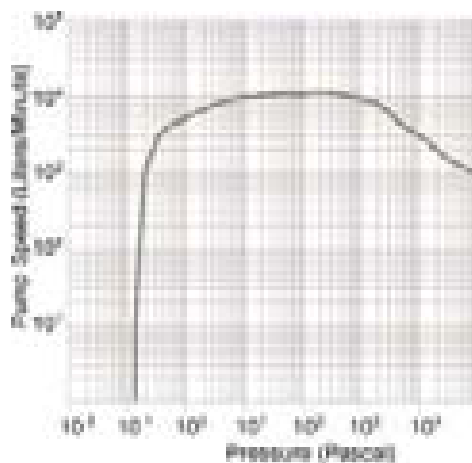


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO₂ Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA100W

Pumping speed (N2)	l/min.	10,000
Pumping speed (N2)	m ³ /h	600
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	0.13
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	5.5
Weight, approx.	kg	270
Sizes (LxWxH)	mm	865x400x760
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series AA100W

1	AA100W	812-0100-2-000-00-00	Vacuum Dry Pump AA100W0, 200V, 50/60 Hz,
2	AA100W-H	812-0100-2-E0H-00-00	Vacuum Dry Pump AA100W-H, 200V, 50/60 Hz, Horizontal Outlet, with Exhaust Pressure Sensor

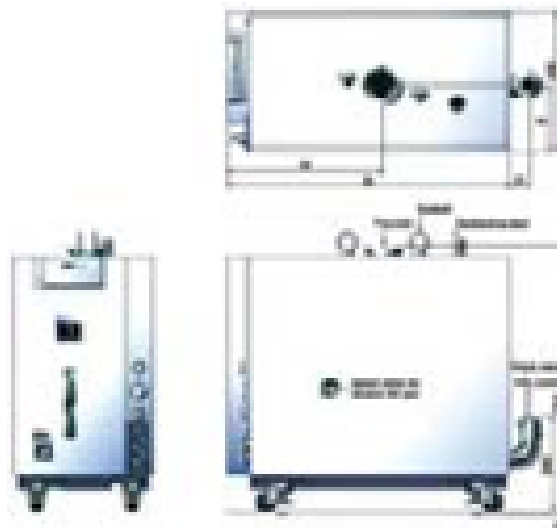
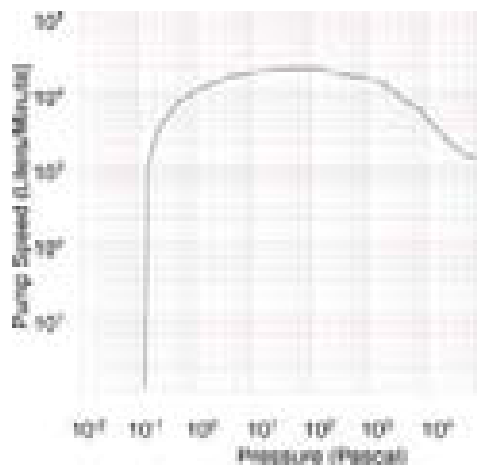


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO₂ Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AA200W		
Pumping speed (N2)	l/min.	18,000
Pumping speed (N2)	m ³ /h	1080
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	0.13
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	6
Weight, approx.	kg	350
Sizes (LxWxH)	mm	885x400x760
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series AA200W

1	AA200W	812-0200-2-000-00-00	Vacuum Dry Pump AA200W0, 200V, 50/60 Hz,
2	AA200W	812-0200-3-000-00-00	Vacuum Dry Pump AA200W0, 380V, 50/60 Hz,

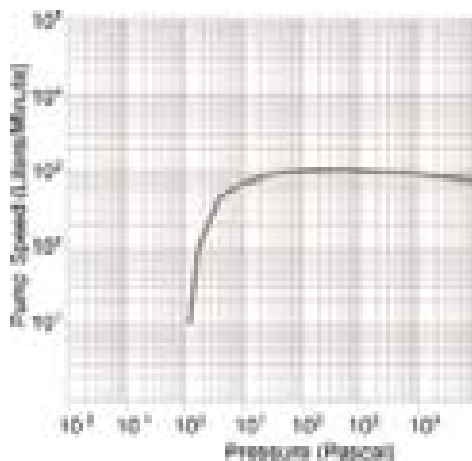


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options



Specification AAS10N

Pumping speed (N2)	l/min.	1000
Pumping speed (N2)	m ³ /h	60
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	1.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	5
Weight, approx.	kg	180
Sizes (LxWxH)	mm	850x380x480
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS10N

1	AS10N	813-0010-2-0N0-00-00	Vacuum Dry Pump AS10N, 200V, 50/60 Hz, Corrosion Resist,
2	AS10N	813-0010-3-0N0-00-00	Vacuum Dry Pump AS10N, 380V, 50/60 Hz, Corrosion Resist,

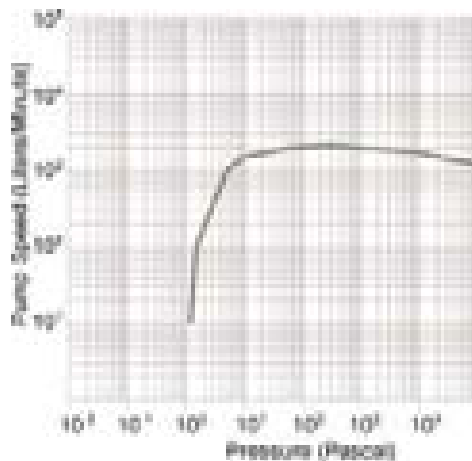


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Screw principle

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options
- For Harsh processes



Specification AAS20N

Pumping speed (N2)	l/min.	2000
Pumping speed (N2)	m ³ /h	120
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	1.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	5
Weight, approx.	kg	190
Sizes (LxWxH)	mm	930x380x480
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS20N

1	AS20N	813-0020-2-0N0-00-00	Vacuum Dry Pump AS20N, 200V, 50/60 Hz, Corrosion Resist,
2	AS20N	813-0020-3-0N0-00-00	Vacuum Dry Pump AS20N, 380V, 50/60 Hz, Corrosion Resist,

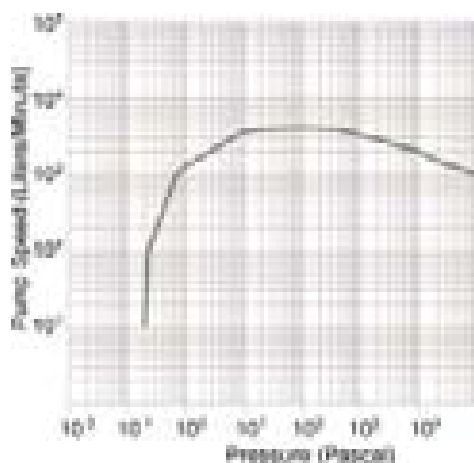


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Screw principle

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options
- For Harsh processes



Specification AAS40WN		
Pumping speed (N2)	l/min.	4000
Pumping speed (N2)	m ³ /h	240
Ultimate pressure	mbar	2x10 ⁻³
Ultimate pressure	Pa	0.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	6.5
Weight, approx.	kg	280
Sizes (LxWxH)	mm	830x400x790
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS40WN

1	AS40WN	813-0040-2-0N0-00-00	Vacuum Dry Pump AS40WN, 200V, 50/60 Hz, Corrosion Resist,
2	AS40WN	813-0040-3-0N0-00-00	Vacuum Dry Pump AS40WN, 380V, 50/60 Hz, Corrosion Resist,

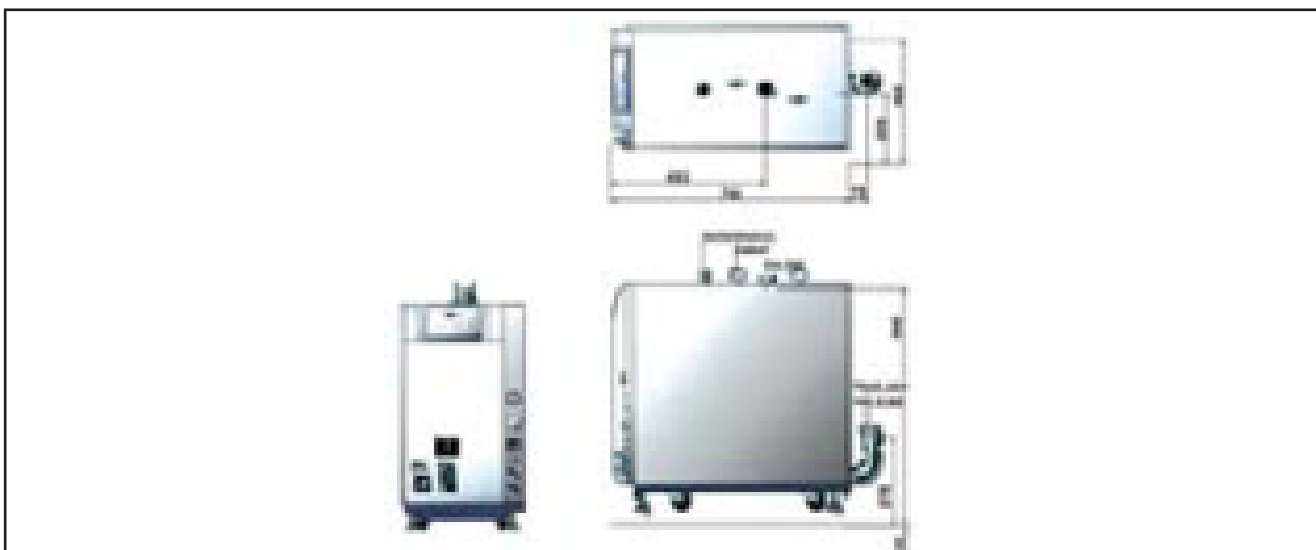
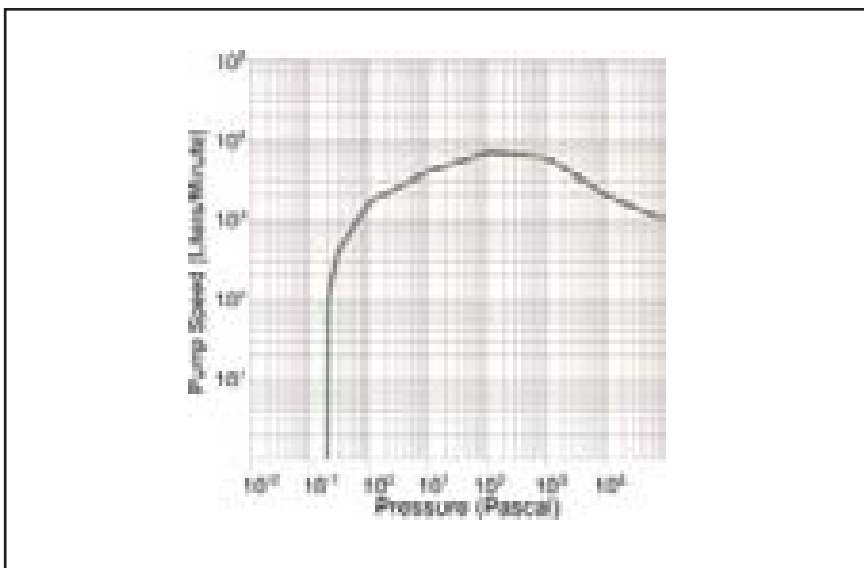


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Screw principle

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options
- For Harsh processes



Specification AAS70WN

Pumping speed (N2)	l/min.	7000
Pumping speed (N2)	m ³ /h	420
Ultimate pressure	mbar	2x10 ⁻³
Ultimate pressure	Pa	0.2
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	7.5
Weight, approx.	kg	280
Sizes (LxWxH)	mm	830x400x790
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS70WN

1	AS70WN	813-0070-2-0N0-00-00	Vacuum Dry Pump AS70WN, 200V, 50/60 Hz, Corrosion Resist,
2	AS70WN	813-0070-3-0N0-00-00	Vacuum Dry Pump AS70WN, 380V, 50/60 Hz, Corrosion Resist,

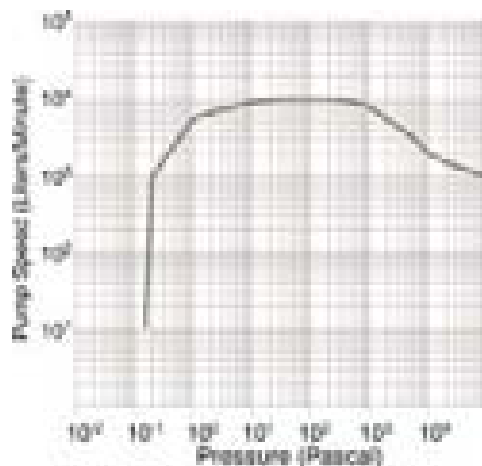


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Screw principle

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options
- For Harsh processes



Specification AAS100WN

Pumping speed (N2)	l/min.	10,000
Pumping speed (N2)	m ³ /h	600
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	0.13
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	7.5
Weight, approx.	kg	300
Sizes (LxWxH)	mm	830x400x800
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS100WN

1	AS100WN	813-0100-2-0N0-00-00	Vacuum Dry Pump AS100WN, 200V, 50/60 Hz, Corrosion Resist,
2	AS100WN	813-0100-3-0N0-00-00	Vacuum Dry Pump AS100WN, 380V, 50/60 Hz, Corrosion Resist,

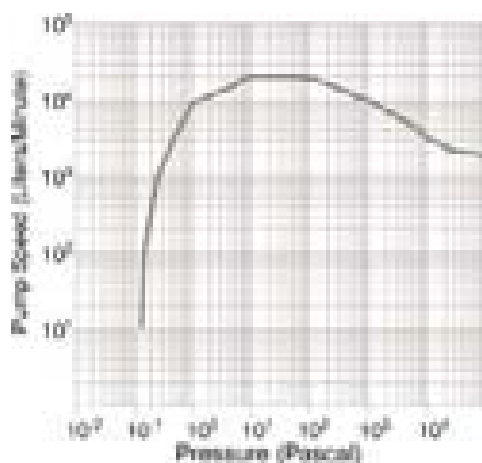


Technical Characteristics

- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete pump safeguard system
- High pump operating temperature preventing condensation
- Low noise and low vibration
- Screw principle

Customer Benefits

- Reduced Operating Costs and CO2 Emissions
- Compact, Space-saving Design
- Faster Pumping Time
- Wide Selection of Options
- For Harsh processes



Specification AAS200WN

Pumping speed (N2)	l/min.	20,000
Pumping speed (N2)	m ³ /h	1200
Ultimate pressure	mbar	1x10 ⁻³
Ultimate pressure	Pa	0.13
Water Consumption	l/min.	5-8
Nitrogen Consumption	SLM	17-19
Nitrogen Consumption	Pa m ³ /sec	28-31
Voltages ranges	V	200-220/380-415
Motor power, installed	kW	9
Weight, approx.	kg	360
Sizes (LxWxH)	mm	950x490x830
Inlet flange size		DN 100ISO-KF
Outlet flange size		DN 40 KF

Ordering Data Series AAS200WN

1	AS200WN	813-0200-2-0N0-00-00	Vacuum Dry Pump AS200WN, 200V, 50/60 Hz, Corrosion Resist,
2	AS200WN	813-0200-3-0N0-00-00	Vacuum Dry Pump AS200WN, 380V, 50/60 Hz, Corrosion Resist,

Vacuum Dry Pumps Series ESR

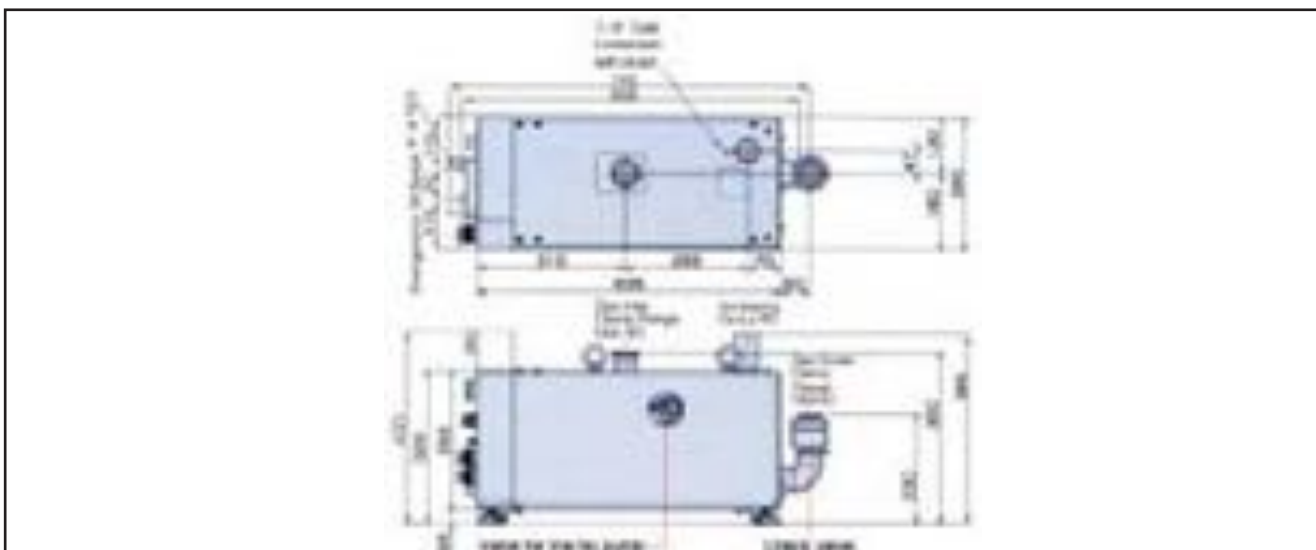
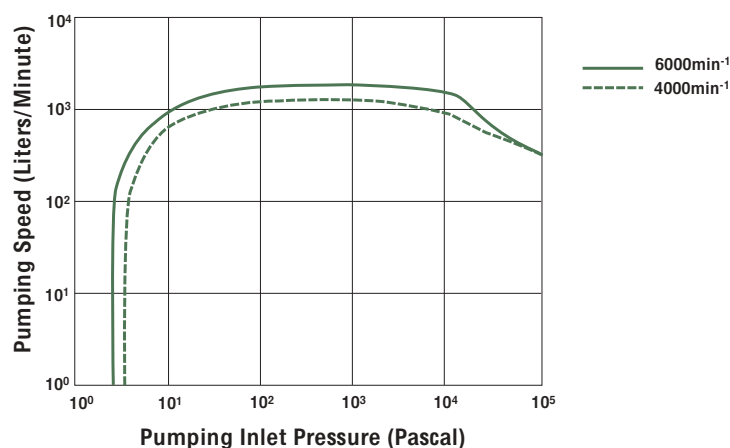
EBARA is a world leader in the design and manufacturing of dry mechanical pumps. EBARA's dry pumps feature highest reliability, low noise and vibration and lowest cost of ownership. They are available with a wide range of pumping speeds and different configurations for special semiconductor applications.

50-51 Vacuum Dry Pumps Series ESR

52-53 Dry Pumps ESR 20N

54-55 Dry Pumps ESR 80WN

56-57 Dry Pumps ESR 200WN



Technical Characteristics

- Thoroughly Roots design based for application in clean and medium harsh processes
- Main Pump without Booster Pump
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosian Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving

Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities

Specification ESR20N

Pumping speed (N2)	l/min.	1300-2000
Pumping speed (N2)	m ³ /h	78-120
Ultimate pressure	mbar	0.02 at 2000 l/min; 0,027 at 1300 l/min
Ultimate pressure	Pa	2-2.7
Water Consumption	l/min.	2-8
Nitrogen Consumption	SLM	11-13, (0) at clean applications
Nitrogen Consumption	Pa m ³ /sec	19-22, (0)
Voltages ranges	V	200-220/380-440
Motor power, installed	kW	4.0
Weight, approx.	kg	90
Sizes (LxWxH)	mm	695x280x370
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

Ordering Data Series ESR20N

1	ESR20N MP 6000	814-0020-2-0N0-00-00	Vacuum Dry Pump ESR20, 200V, 50/60 Hz,
2	ESR20N MP 6000	814-0020-3-0N0-00-00	Vacuum Dry Pump ESR20, 380V, 50/60 Hz

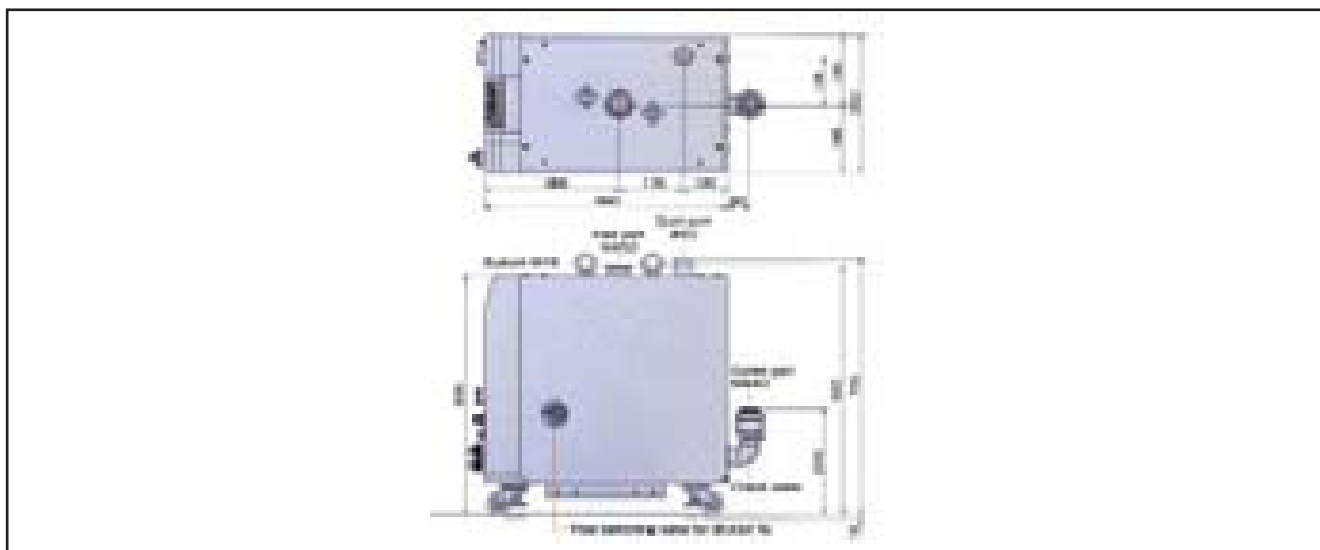
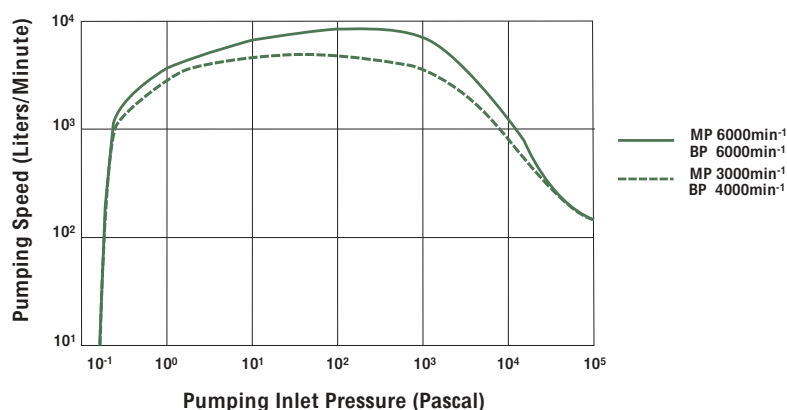
Technical Characteristics



- Thoroughly Roots design based for application in clean and medium harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving

Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification ESR80WN		
Pumping speed (N2)	l/min.	4000-8500
Pumping speed (N2)	m ³ /h	240-510
Ultimate pressure	mbar	2x10 ⁻³
Ultimate pressure	Pa	0.2
Water Consumption	l/min.	2-8
Nitrogen Consumption	SLM	11-13, 2 at clean applications
Nitrogen Consumption	Pa m ³ /sec	19-22, 3.4
Voltages ranges	V	200-220/380-440
Motor power, installed	kW	7.0
Weight, approx.	kg	180
Sizes (LxWxH)	mm	720x380x705
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

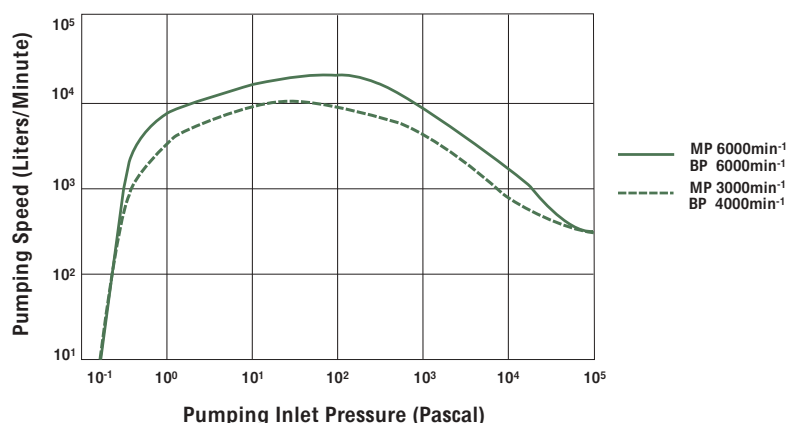
Ordering Data Series ESR80WN

1	ESR80WN MP 6000	814-0080-2-0N0-00-00	Vacuum Dry Pump ESR80WN, 200V, 50/60 Hz,
2	ESR80WN MP 6000	814-0080-3-0N0-00-00	Vacuum Dry Pump ESR80WN, 380V, 50/60 Hz

Technical Characteristics

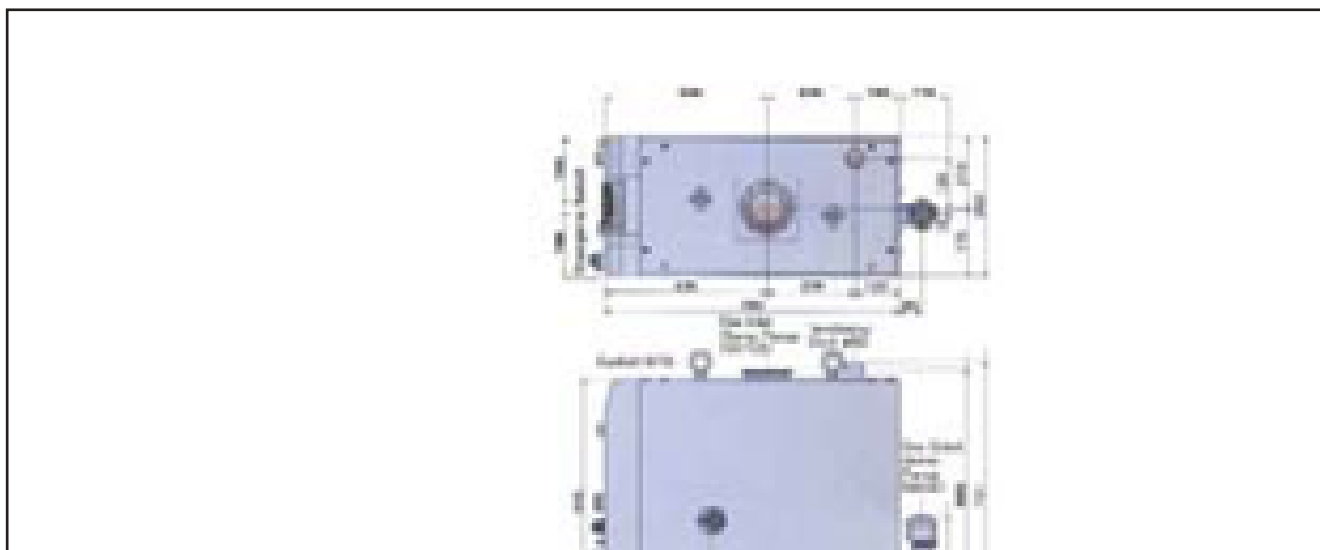


- Thoroughly Roots design based for application in clean and medium harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving



Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification ESR200WN

Pumping speed (N2)	l/min.	10,000 - 20,000
Pumping speed (N2)	m ³ /h	600 - 1200
Ultimate pressure	mbar	1.3x10 ⁻³
Ultimate pressure	Pa	0.13
Water Consumption	l/min.	2-8
Nitrogen Consumption	SLM	11-13, 2 at clean applications
Nitrogen Consumption	Pa m ³ /sec	19-22, 3.4
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	8.0
Weight, approx.	kg	250
Sizes (LxWxH)	mm	850x380x705
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series ESR200WN

1	ESR200WN MP 6000	814-0200-2-0N0-00-00	Vacuum Dry Pump ESR200WN, 200V, 50/60 Hz,
2	ESR200WN MP 6000	814-0200-3-0N0-00-00	Vacuum Dry Pump ESR200WN, 380V, 50/60 Hz,

Vacuum Dry Pumps Series EST

The EST Series consists of a two-stage screw design main pump engineered for application in harsh duty processes. The main pump is packaged with a lobe style booster pump for increased pumping speed. The EST Series covers a wide pumping speed range from 88 to 1766 CFM.

58-59 Vacuum Dry Pumps Series EST

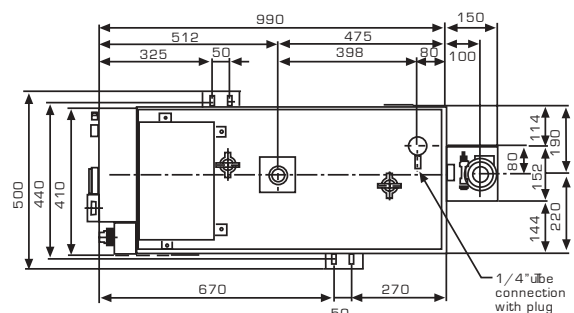
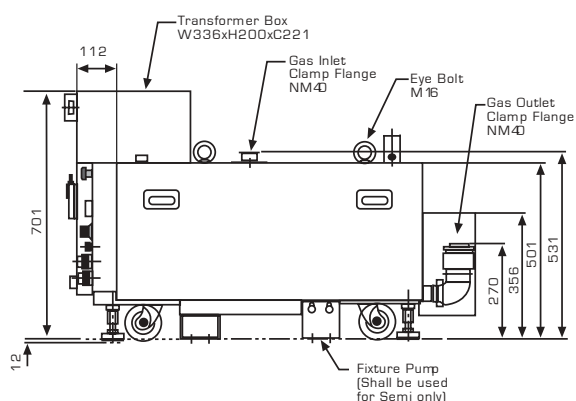
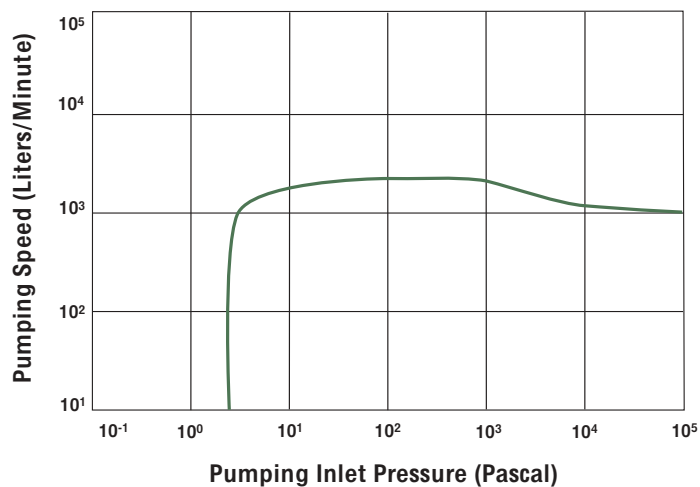
60-61	Dry Pumps EST25N
62-63	Dry Pumps EST100WN
64-65	Dry Pumps EST200WN
66-67	Dry Pumps EST300WN
68-69	Dry Pumps EST500WN

Technical Characteristics

- Two stage screw design of the main pump for application in harsh processes
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving

Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed



Specification EST25N

Pumping speed (N2)	l/min.	2,500
Pumping speed (N2)	m ³ /h	150
Ultimate pressure	mbar	1.3x10 ⁻²
Ultimate pressure	Pa	2.7
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	8.5
Weight, approx.	kg	230
Sizes (LxWxH)	mm	1140x410x531(701)
Inlet flange size		DN 40 KF
Outlet flange size		DN 40 KF

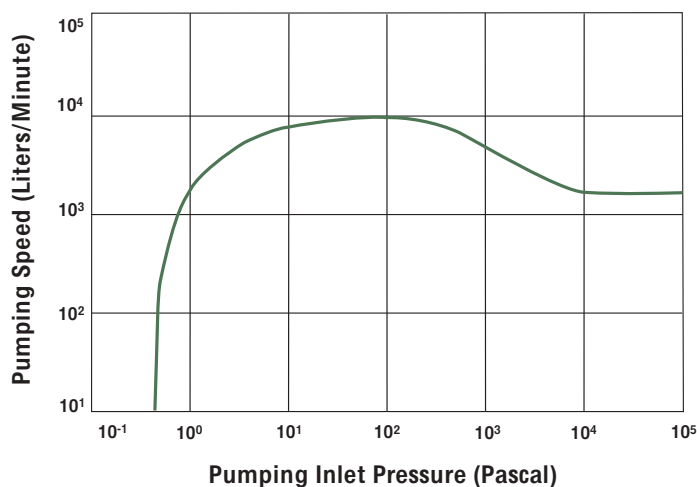
Ordering Data Series EST25N

1	EST25N	815-0025-2-0N0-00-00	Vacuum Dry Pump EST25N, 200 V
2	EST25N	815-0025-3-0N0-00-00	Vacuum Dry Pump EST25N, 380 V

Technical Characteristics

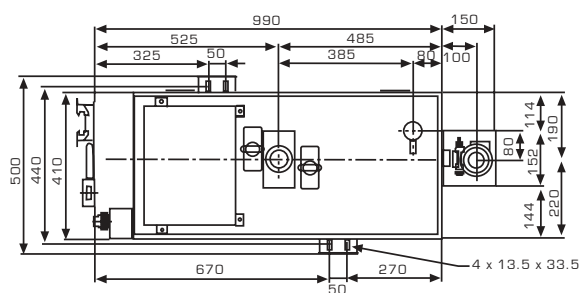
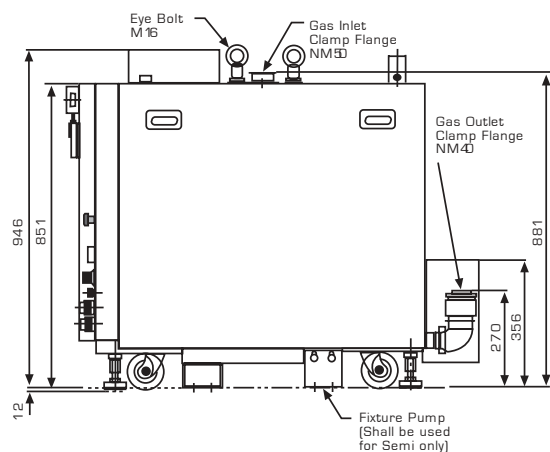


- Two stage screw design of the main pump for application in harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving



Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification EST100WN

Pumping speed (N2)	l/min.	5,000 - 10,000
Pumping speed (N2)	m ³ /h	300 - 600
Ultimate pressure	mbar	5x10 ⁻³
Ultimate pressure	Pa	0.5
Water Consumption	l/min.	3.5-8
Nitrogen Consumption	SLM	11-13
Nitrogen Consumption	Pa m ³ /sec	19-22
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	12.5
Weight, approx.	kg	340
Sizes (LxWxH)	mm	1140x410x946
Inlet flange size		DN 50 KF
Outlet flange size		DN 40 KF

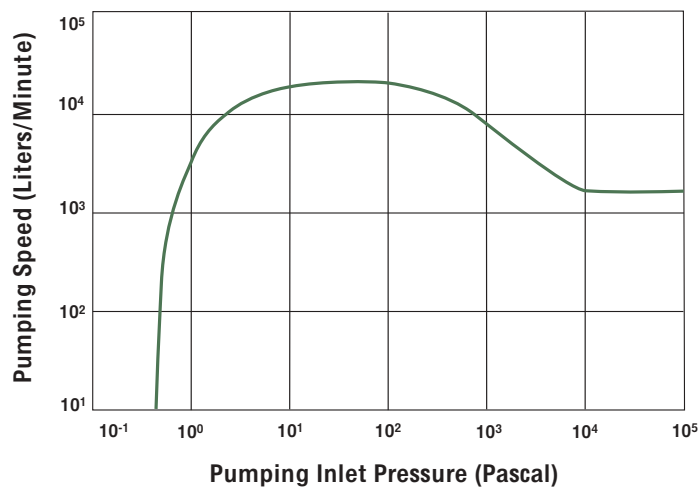
Ordering Data Series EST100WN

1	EST100WN	815-0100-2-0N0-00-00	Vacuum Dry Pump EST100WN, 200 V
2	EST100WN	815-0100-3-0N0-00-00	Vacuum Dry Pump EST100WN, 380 V

Technical Characteristics

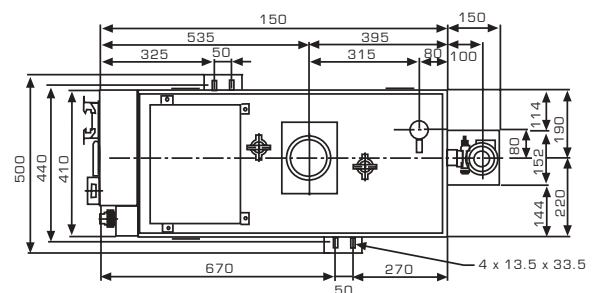
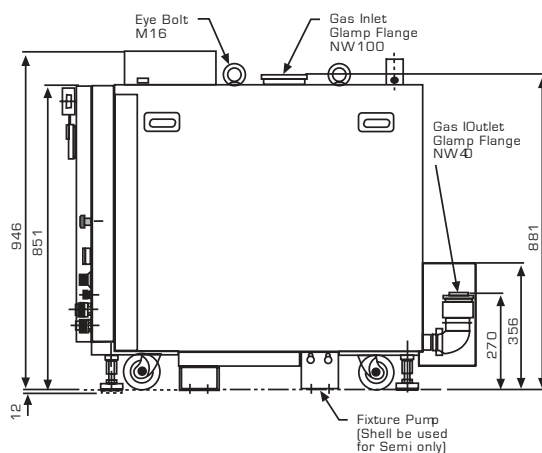


- Two stage screw design of the main pump for application in harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving



Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification EST200WN

Pumping speed (N2)	l/min.	10,000 - 20,000
Pumping speed (N2)	m ³ /h	600 - 1,200
Ultimate pressure	mbar	4x10 ⁻³
Ultimate pressure	Pa	0.4
Water Consumption	l/min.	5-8
Nitrogen Consumption	SLM	17-19
Nitrogen Consumption	Pa m ³ /sec	28-31
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	14.5
Weight, approx.	kg	460
Sizes (LxWxH)	mm	1140x410x946
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

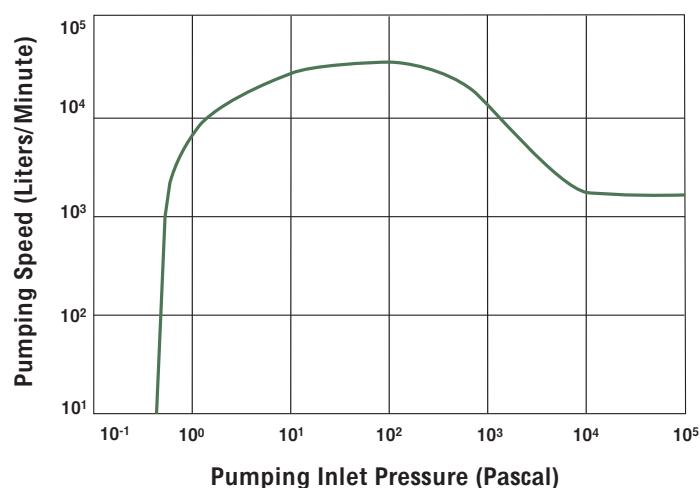
Ordering Data Series EST200WN

1	EST200WN	815-0100-2-0N0-00-00	Vacuum Dry Pump EST200WN, 200 V
2	EST200WN	815-0100-3-0N0-00-00	Vacuum Dry Pump EST200WN, 380 V

Technical Characteristics

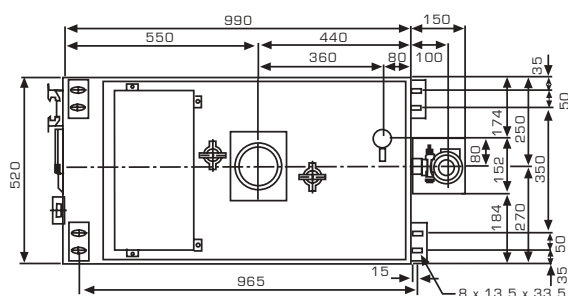
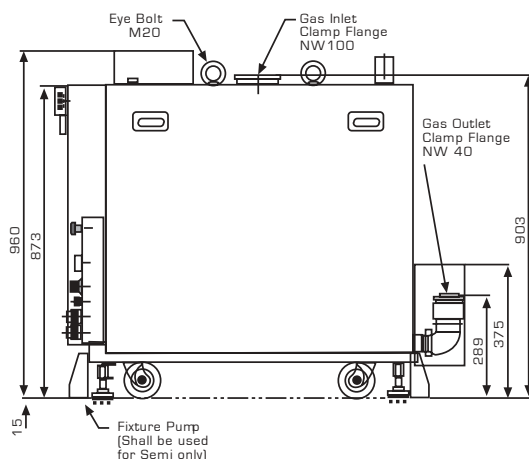


- Two stage screw design of the main pump for application in harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving



Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification EST300WN

Pumping speed (N2)	l/min.	15,000 - 30,000
Pumping speed (N2)	m ³ /h	900 - 1,800
Ultimate pressure	mbar	4x10 ⁻³
Ultimate pressure	Pa	0.4
Water Consumption	l/min.	5-8
Nitrogen Consumption	SLM	17-19
Nitrogen Consumption	Pa m ³ /sec	28-31
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	14.5
Weight, approx.	kg	460
Sizes (LxWxH)	mm	1140x520x968
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

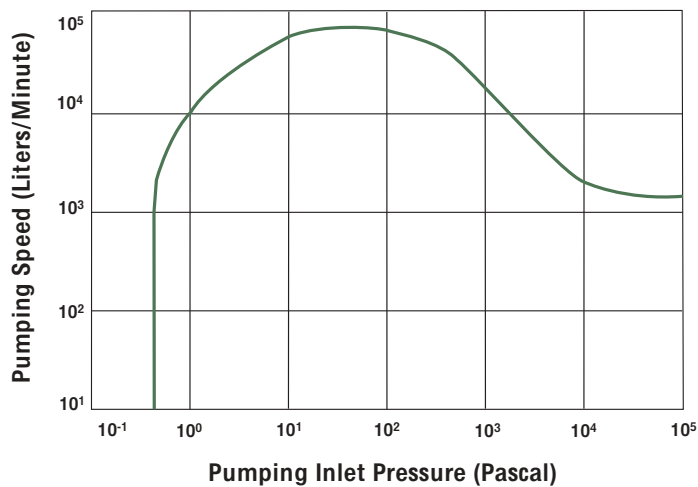
Ordering Data Series EST300WN

1	EST300WN	815-0300-2-0N0-00-00	Vacuum Dry Pump EST300WN, 200 V
2	EST300WN	815-0300-3-0N0-00-00	Vacuum Dry Pump EST300WN, 380 V

Technical Characteristics

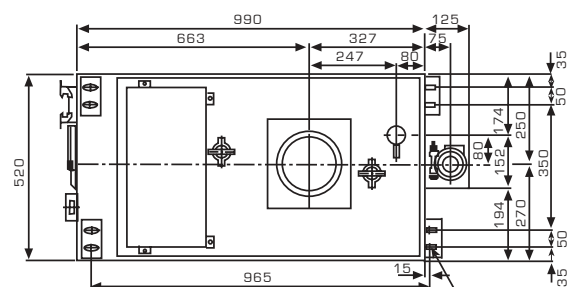
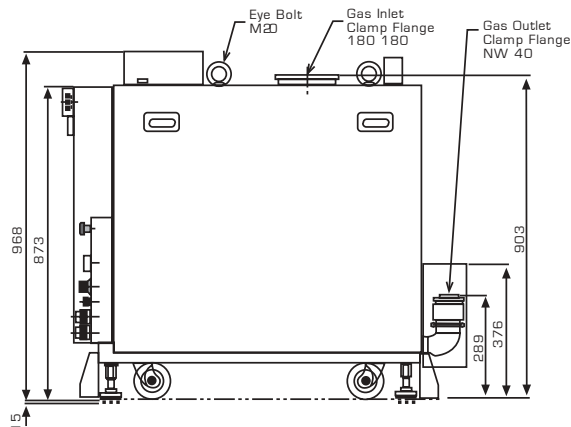


- Two stage screw design of the main pump for application in harsh processes
- Main Pump with Booster Pump integrated into one Housing
- DC Motor
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- thoroughly Corrosion Resistant Material
- variable Pumping Speed by RPM-Selection
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity
- Idle Mode for Energy Saving



Customer Benefits

- Lowest Cost of Ownership in its class
- most compact Pump Size of its class
- keeping Pump Inventory low due to Speed Selection
- small Number of Pump Models covering the Full Range of required Speed
- Variable Pumping Speed according customer's necessities



Specification EST500WN

Pumping speed (N2)	l/min.	25,000 - 50,000
Pumping speed (N2)	m ³ /h	1,500 - 3,000
Ultimate pressure	mbar	4x10 ⁻³
Ultimate pressure	Pa	0.4
Water Consumption	l/min.	5-8
Nitrogen Consumption	SLM	17-19
Nitrogen Consumption	Pa m ³ /sec	28-31
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	17.0
Weight, approx.	kg	4550
Sizes (LxWxH)	mm	1115x520x968
Inlet flange size		DN 160 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series EST500WN

1	EST500WN	815-0500-2-0N0-00-00	Vacuum Dry Pump EST500WN, 200 V
2	EST500WN	815-0500-3-0N0-00-00	Vacuum Dry Pump EST500WN, 380 V

Vacuum Dry Pumps Series ESA

The ESA Series (Energy Saving Atmosphere) is a multistage lobe design engineered for Load Lock applications. ESA pumps are designed and manufactured to be the lowest cost of ownership pumps on the market today.

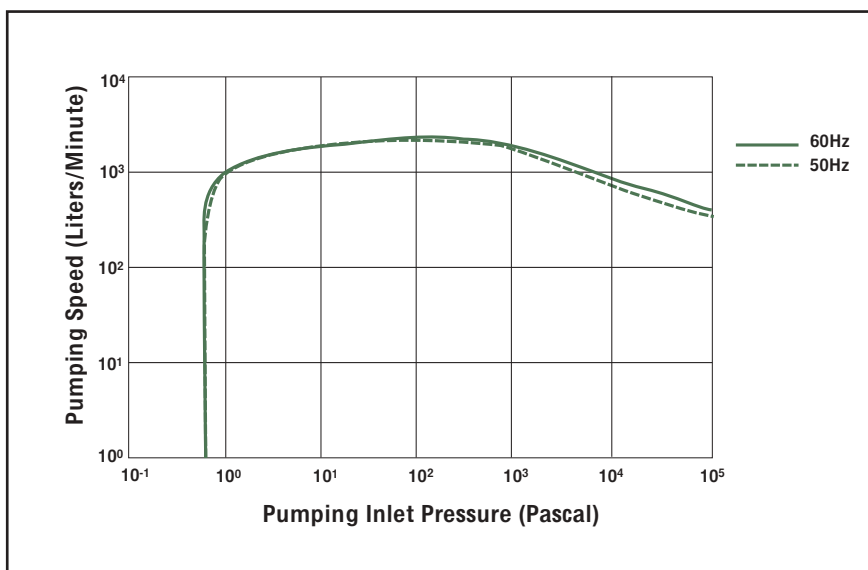
70-71 Vacuum Dry Pumps Series ESA

72-73 Dry Pumps ESA300W



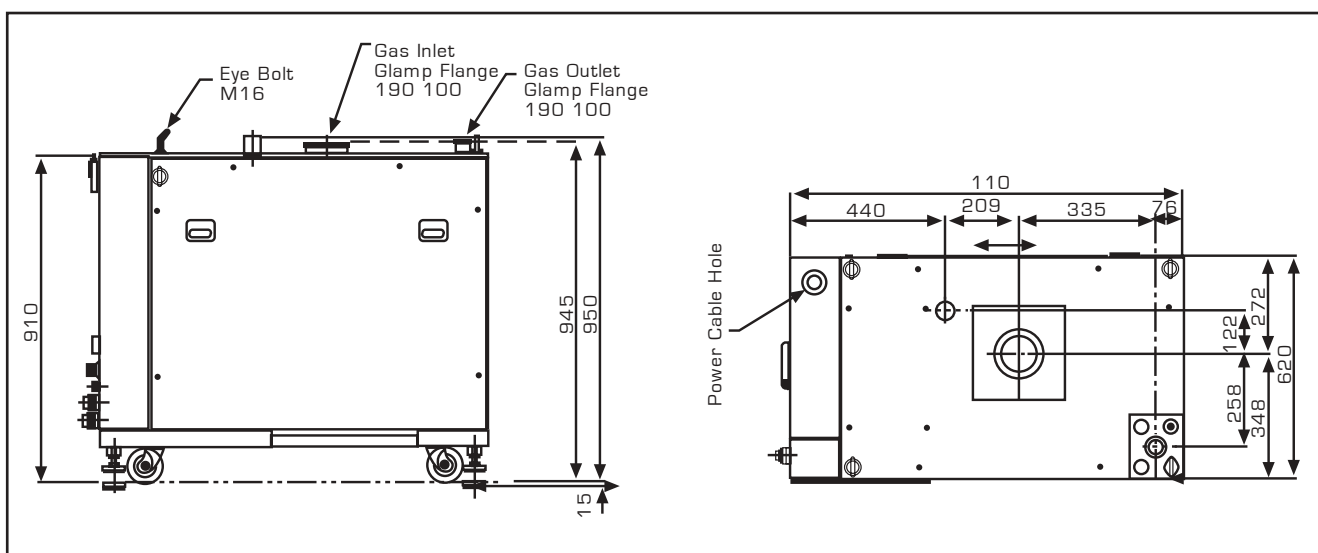
Technical Characteristics

- Thoroughly Roots design based for application in clean and light duty processes
- Main Pump with Booster Pump integrated into one Housing
- AC Motor of Main Pump
- Intelligent Control System
- Power Failure Protection
- Complete Pump Safeguard System
- High Pump Operating Temperature preventing Condensation
- Low Noise and Low Vibration
- Very Small Footprint
- Low Cost in consumables such as Water, Nitrogen, Electricity



Customer Benefits

- pump designed for rapid evacuation of huge gas loads
- typical use in large chamber LL-applications
- Lowest Cost of Ownership in its class
- most compact Pump Size of its class



Specification ESA300W

Pumping speed (N2)	l/min.	15,000/30,000
Pumping speed (N2)	m ³ /h	1,680/1,800
Ultimate pressure	mbar	5.3x10 ⁻³
Ultimate pressure	Pa	0.53
Water Consumption	l/min.	6-9
Nitrogen Consumption	SLM	5-7
Nitrogen Consumption	Pa m ³ /sec	8-11
Voltages ranges	V	200-220/380-400
Motor power, installed	kW	23.7
Weight, approx.	kg	700
Sizes (LxWxH)	mm	1110x620x945
Inlet flange size		DN 100 ISO-K
Outlet flange size		DN 40 KF

Ordering Data Series ESA300W

1	ESA300W	819-0300-2-000-00-00	Vacuum Dry Pump ESA300W, 200 V
2	ESA300W	819-0300-3-000-00-00	Vacuum Dry Pump ESA300W, 380 V

Vacuum Dry Pumps Series VOS

The VOS Series has the highest pumping speed to footprint ratio in the industry. The VOS is a multistage lobe pump designed for installation on or very close to the process tool for clean and light duty applications such as Load Lock and SEM. VOS series pumps are lighter, more compact and pumpdown faster than most point-of-use pumps on the market today.

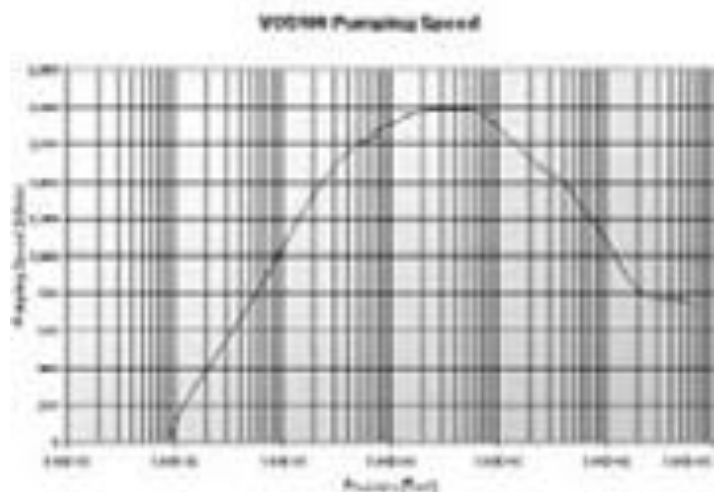
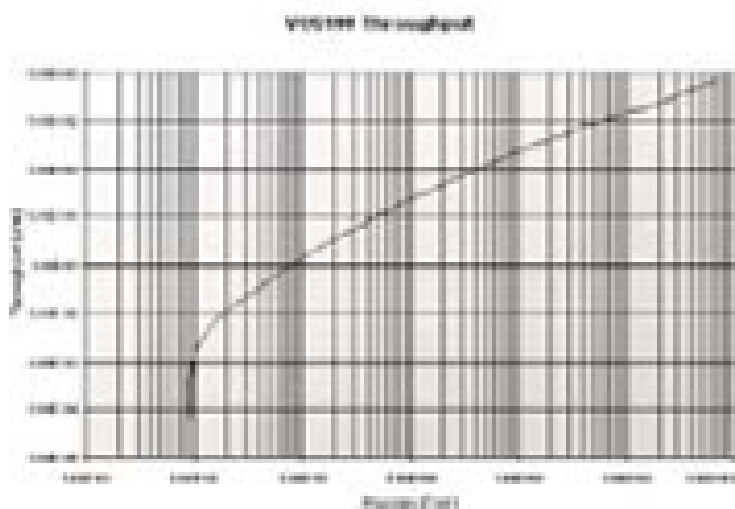
74-75 Vacuum Dry Pumps Series VOS

76-77 Vacuum Dry Pumps VOS100/100P



Technical Characteristics

- Highest pumping speed to footprint ratio in the industry
- Unique pumping mechanism for fast pumpdowns
- Low Cost of Ownership
- No Nitrogen purge required in clean applications
- Robust, proven lobe style design
- High performance brushless DC motor
- Digital and analog signals available for interface to process tools
- Stackable installation available
- SEMI S2 assessed, NRTL Listed, CE Marked



Specification		VOS100	VOS100P
Pumping Speed 50/60 Hz	CFM	64	60
	l/min	1800	1700
	m ³ /h	108	102
Ultimate Pressure 50/60 Hz	mTorr	9	9
	Pa	1.2	1.2
	mbar	0.012	0.012
Connection	Gas Inlet	NW 50	NW 50
	Gas Outlet	NW 25	NW 25
Power at Ultimate Pressure	KW	0.7	0.7
Maximum Power	KW	2.5	2.5
Cooling Water Requirements	l/min	1.5	1.5
	min. Flow Rate		
Bearing and Dilution N ₂	l/min	0	11-13
Bearing Seals			
Cabinet Dimensions, LxWxH	inches	17.7x9.1x10.8	17.7x9.1x10.8
	mm	450x230x275	450x230x27
Weight	lbs	143	143
	kg	65	65

Ordering Data Series VOS

1	VOS100	819-0100-2-000-00-00	Vacuum Dry Pump VOS100, 200V
2	VOS100P	819-0100-2-0P0-00-00	Vacuum Dry Pump VOS100P, 200V

Turbo Molecular Pumps Series ET

EBARA's Turbomolecular Pump series provide a clean, reliable vacuum for the highest requirements in the semiconductor industry. The ET series pumps feature a five-axis magnetic bearing and tuning free half-rack controllers requiring no battery backup.

The ET-H series offers compression ratio performance $>10^6$. The ET-W series features a wide pressure range with maximum back pressure of 3 Torr.

The ET-K series, a cryo turbo pump, combines the high water-vapor pumping speed of a cryo pump and the dynamic process gas pumping of a turbo pump. Pumping speed range is from 300 to 3300 l/s.

78-79 Turbo Molecular Pumps Series ET

80-81 Turbo Molecular Pumps ET600W/ET600WS

82-83 Turbo Molecular Pumps ET1301W/ET1301WS

84-85 Turbo Molecular Pumps ET1600W/ET1600WS

86-87 Turbo Molecular Pumps ET2500W/ET2500WS

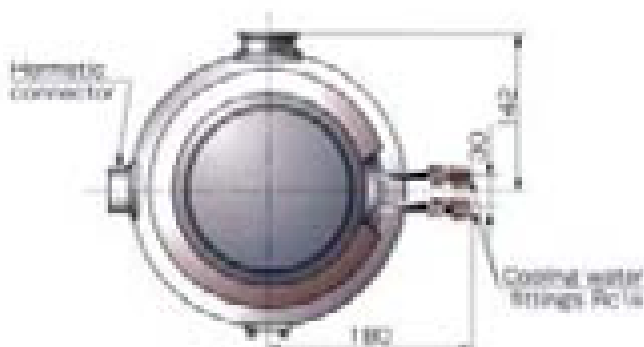
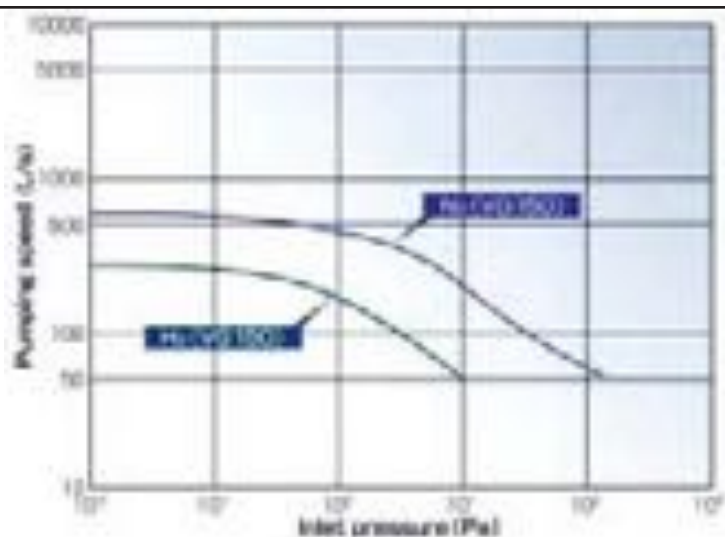
88-89 Turbo Molecular Pumps ET3300W/ET3300WS

90-91 Turbo Molecular Controller



Technical Characteristics

- Complete Range of Product Sizes and Configurations
- Substantial Protective Function: Status of each part of pump is always monitored with sensors
- Installation at any Orientation
- Half Rack Size Controller: The width of controller is reduced to 1/2 the conventional width, space savings are realized
- Tuning Free: Combinations of Pumps/Controllers/Cables can be packaged based on similar model pumps
- Battery-less: Back-up battery for use in power failure is not required
- Built-in Heater-controller
- Pump Operating Informations is Displayed via Liquid Crystal Display
- Communication Function: A remote control operations, and confirmation of operating state as well as any abnormality, with RS232C (Optional)
- Covering CE-Marking, SEMI Standards



Turbo Molecular Pumps ET600W/ET600WS

Specification		ET600W	ET600WS
Pumping speed (N ₂)	l/s.	600	
Ultimate pressure	mbar	4	
Ultimate pressure	Pa	400 (3)	
Water Consumption	l/min.	> 2	
Nitrogen Consumption	Pa l/s.	0.05 (0.5)	
Voltages ranges	V	220	
Weight, approx.	kg	35	
Sizes (LxWxH)	mm	220x530x199	
Inlet flange size		VG 150	
Outlet flange size		NW 40	

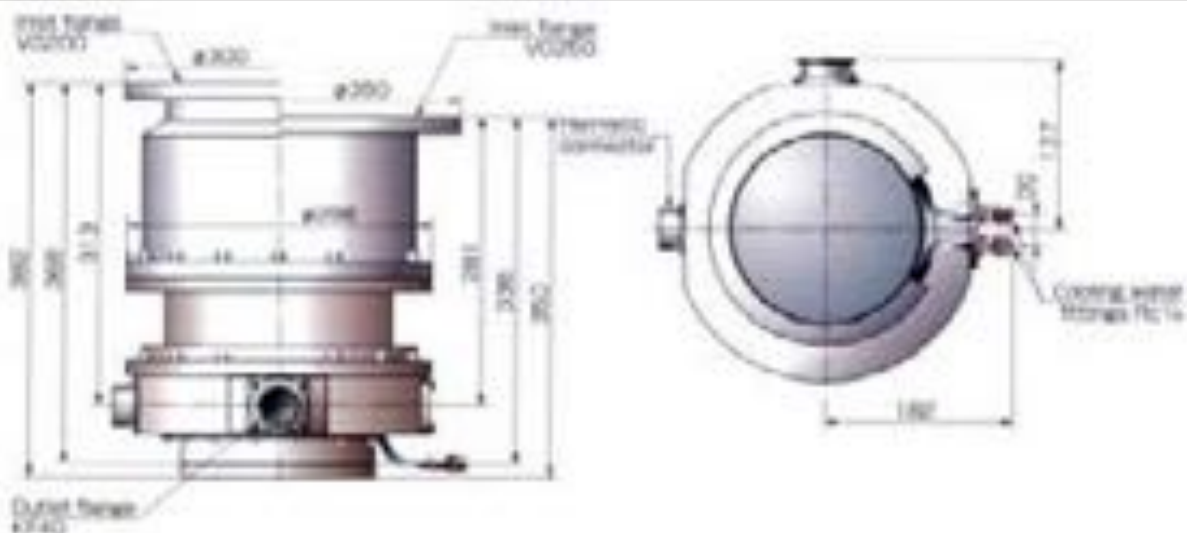
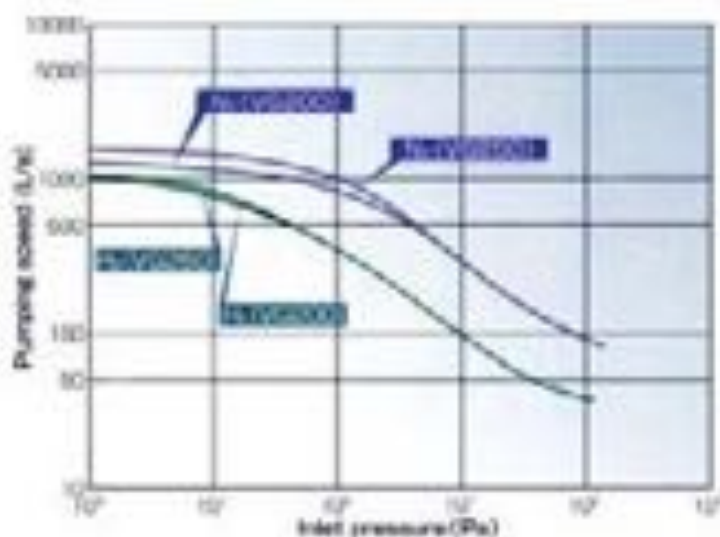
Ordering Data Series ET600W/ET600WS

1	ET600W	820-0600-2-W00-00-00	Turbo Molecular Pump ET600W, 220 V
2	ET600WS	820-0600-2-WS0-00-00	Turbo Molecular Pump ET600WS, 220 V



Technical Characteristics

- **Complete Range of Product Sizes and Configurations**
- **Substantial Protective Function:** Status of each part of pump is always monitored with sensors
- **Installation at any Orientation**
- **Half Rack Size Controller:** The width of controller is reduced to 1/2 the conventional width, space savings are realized
- **Tuning Free:** Combinations of Pumps/Controllers/Cables can be packaged based on similar model pumps
- **Battery-less:** Back-up battery for use in power failure is not required
- **Built-in Heater-controller**
- **Pump Operating Informations is Displayed via Liquid Crystal Display**
- **Communication Function:** A remote control operations, and confirmation of operating state as well as any abnormality, with RS232C (Optional)
- **Covering CE-Marking, SEMI Standards**



Turbo Molecular Pumps ET1600W/ET1600WS

Specification		ET1600W	ET1600WS
Pumping speed (N ₂)	l/s	1600	
Ultimate pressure	mbar	4	
Ultimate pressure	Pa	400	
Water Consumption	l/min.	> 2	
Nitrogen Consumption	Pa l/s.	0.05 (0.5)	
Voltages ranges	V	220	
Weight, approx.	kg	55	
Sizes (LxWxH)	mm	220x530x199	
Inlet flange size		VG 250	
Outlet flange size		NW 25	

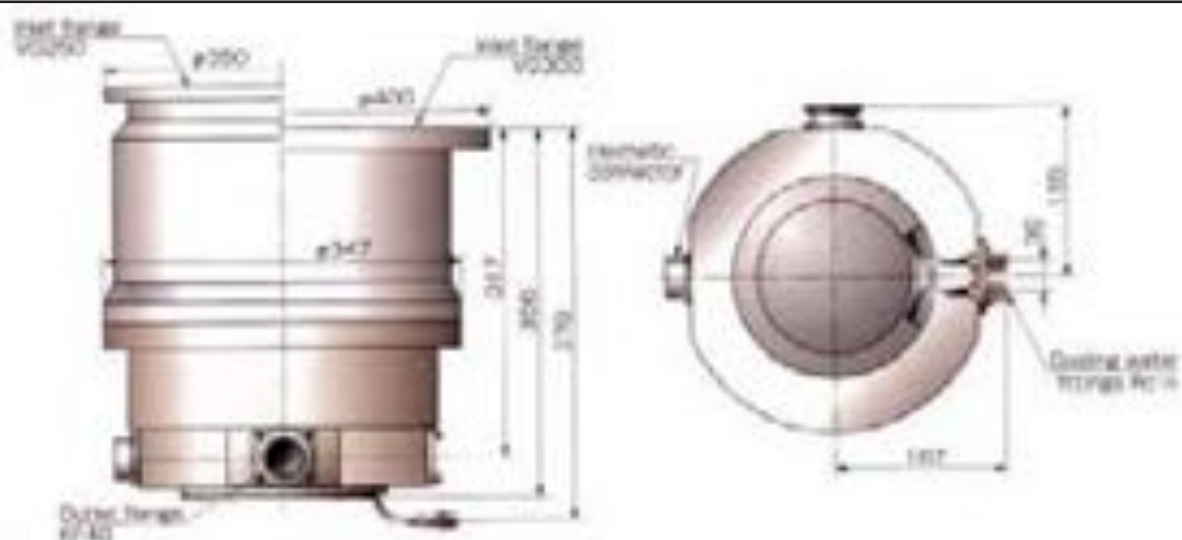
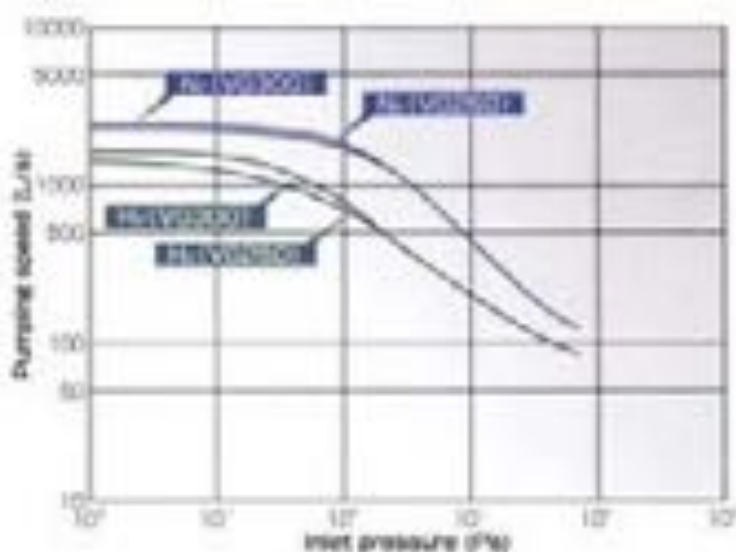
Ordering Data Series ET1600W/ET1600WS

1	ET1600W	820-1600-2-W00-00-00	Turbo Molecular Pump ET1600W, 220V
2	ET1600WS	820-1600-2-WS0-00-00	Turbo Molecular Pump ET1600WS, 220V



Technical Characteristics

- **Complete Range of Product Sizes and Configurations**
- **Substantial Protective Function:** Status of each part of pump is always monitored with sensors
- **Installation at any Orientation**
- **Half Rack Size Controller:** The width of controller is reduced to 1/2 the conventional width, space savings are realized
- **Tuning Free:** Combinations of Pumps/Controllers/Cables can be packaged based on similar model pumps
- **Battery-less:** Back-up battery for use in power failure is not required
- **Built-in Heater-controller**
- **Pump Operating Informations is Displayed via Liquid Crystal Display**
- **Communication Function:** A remote control operations, and confirmation of operating state as well as any abnormality, with RS232C (Optional)
- **Covering CE-Marking, SEMI Standards**



Turbo Molecular Pumps ET2500W/ET2500WS

Specification		ET2500W	ET2500WS
Pumping speed (N ₂)	l/s.	2500	
Ultimate pressure	mbar	2.7	
Ultimate pressure	Pa	266	
Water Consumption	l/min.	> 2	
Nitrogen Consumption	Pa l/s.	0.05 (0.5)	
Voltages ranges	V	220	
Weight, approx.	kg	80	
Sizes (LxWxH)	mm	215x530x199	
Inlet flange size		VG 250	VG 300
Outlet flange size		NW 40	NW 40

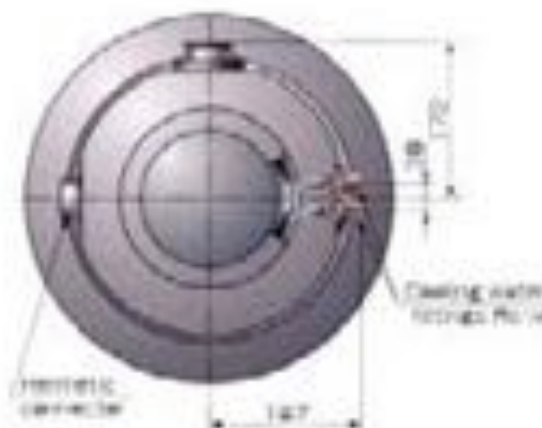
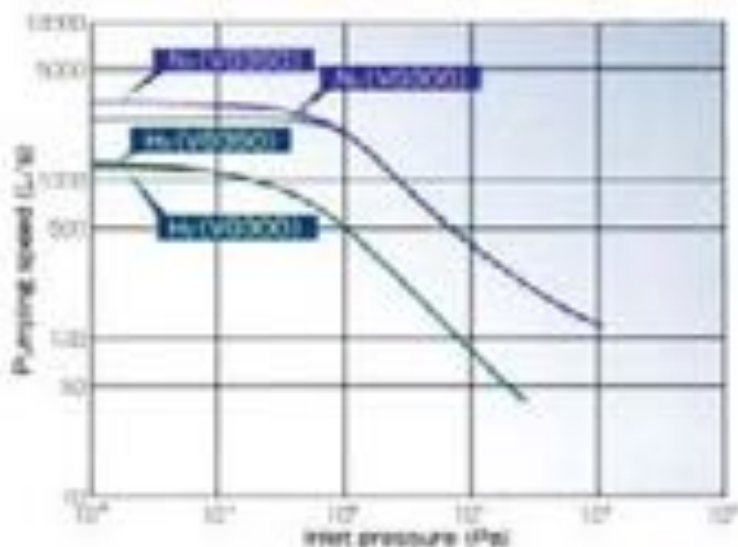
Ordering Data Series ET2500W

1	ET2500W	820-2500-2-W00-00-00	Turbo Molecular Pump ET2500W, 220V
2	ET2500WS	820-2500-2-WS0-00-00	Turbo Molecular Pump ET2500WS, 220V



Technical Characteristics

- **Complete Range of Product Sizes and Configurations**
- **Substantial Protective Function:** Status of each part of pump is always monitored with sensors
- **Installation at any Orientation**
- **Half Rack Size Controller:** The width of controller is reduced to 1/2 the conventional width, space savings are realized
- **Tuning Free:** Combinations of Pumps/Controllers/Cables can be packaged based on similar model pumps
- **Battery-less:** Back-up battery for use in power failure is not required
- **Built-in Heater-controller**
- **Pump Operating Informations is Displayed via Liquid Crystal Display**
- **Communication Function:** A remote control operations, and confirmation of operating state as well as any abnormality, with RS232C (Optional)
- **Covering CE-Marking, SEMI Standards**



Turbo Molecular Pumps ET3300W/ET3300WS

Specification		ET3300W	ET3300WS
Pumping speed (N2)	l/s.	3300	
Ultimate pressure	mbar	4	
Ultimate pressure	Pa	400	
Water Consumption	l/min.	> 2	
Nitrogen Consumption	Pa l/s.	0.05 (0.5)	
Voltages ranges	V	220	
Weight, approx.	kg	100	
Sizes (LxWxH)	mm	215x530x199	
Inlet flange size		VG 300	VG 350
Outlet flange size		NW 40	NW 40

Ordering Data Series ET3300W/ET3300WS

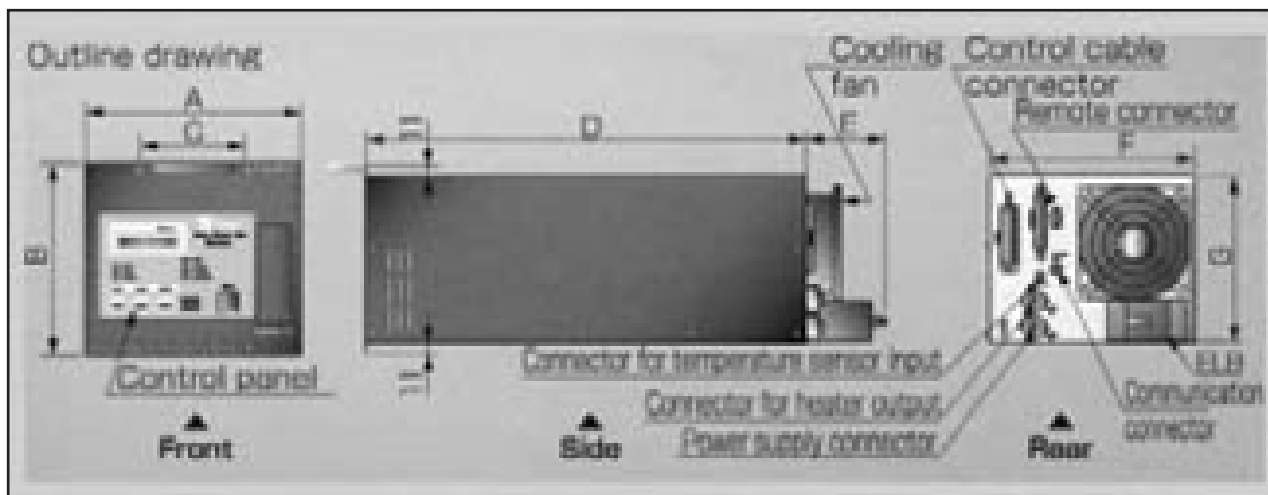
1	ET3300W	820-3300-2-W00-00-00	Turbo Molecular Pump ET3300W, 220V
2	ET3300WS	820-3300-2-WS0-00-00	Turbo Molecular Pump ET3300WS, 220V

Turbo Molecular Pump Controller



Technical Characteristics

- Gasket for inlet flange
- Protective metal wirenet
- Control Cable
- Power supply cable
- Connector for control signal
- Valve for purging N²
- baking heater



Outline Drawing with Dimensions

Unit: mm

Model	A	B	C	D	E	F	G
306W-TF	220	132.5	110	350	60	210	111
465W-TF		199		450	80		177
606W-TF							
806W-TF							
1006W-TF							
1206W-TF							
1606W-TF							
2206W-TF							
2506W-TF							
3306W-TF							

Ordering Data Series Controller

1	306W-TF	820-0306-2-WTF-00-00	Turbo Molecular Pump Controller
2	465W-TF	820-0465-2-WTF-00-00	Turbo Molecular Pump Controller
3	606W-TF	820-0606-2-WTF-00-00	Turbo Molecular Pump Controller
4	806W-TF	820-0806-2-WTF-00-00	Turbo Molecular Pump Controller
5	1006W-TF	820-1006-2-WTF-00-00	Turbo Molecular Pump Controller
6	1206W-TF	820-1206-2-WTF-00-00	Turbo Molecular Pump Controller
7	1606W-TF	820-0106-2-WTF-00-00	Turbo Molecular Pump Controller
8	2206W-TF	820-2206-2-WTF-00-00	Turbo Molecular Pump Controller
9	2506W-TF	820-2506-2-WTF-00-00	Turbo Molecular Pump Controlle
10	3306W-TF	820-3306-2-WTF-00-00	Turbo Molecular Pump Controller

Point-of-Use Abatement Systems

Ebara offers a line of Point-of-Use Abatement systems capable of handling most processes in the microelectronics industry. Our abatement product line includes wet, combustion, catalytic, dynamic oxidation and thermal technologies. All of Ebara's abatement technologies are designed for low cost of ownership, high reliability and compliance to safety standards.

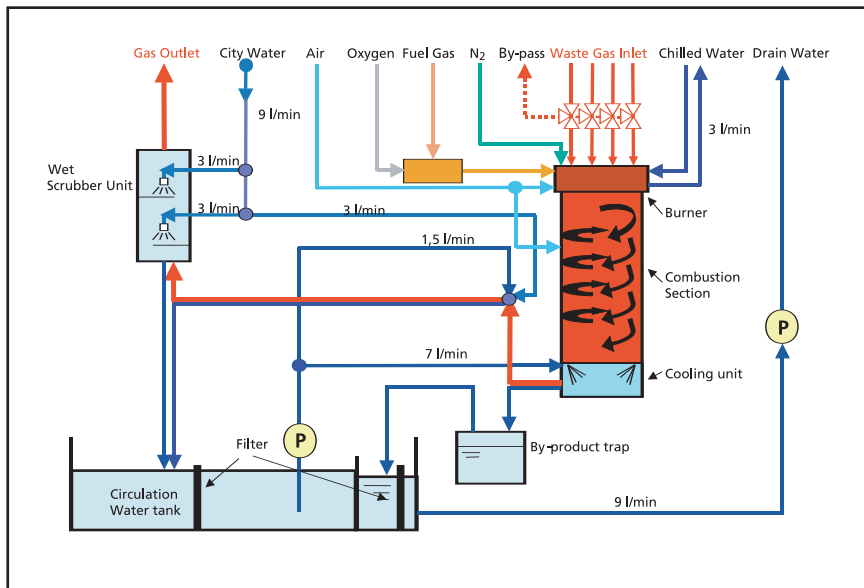
- 94-97** Process-Gas-Abatement System GDC 250
- 98-99** Gas Combined Reactor GCR 120
- 100-101** Pure Air Systems
- 102-103** Airgard – Cyclone



EBARA's GDC250 point-of-use gas abatement system combines the features and benefits of a patented rolling burner and a high efficiency fan scrubber. The GDC250 is specifically designed for high decomposition abilities for both hydride and PFC (perfluorocompound) gases used in semiconductor applications. Special coatings, advanced corrosion resistant metal alloys and scrapers control corrosion and clogging issues experienced with today's harshest processes. With a small footprint, low utility consumption and multiple fuel burning methods, the GDC250 has the ability to treat 250 slm of inlet flow while removing the combustion solid by-products.

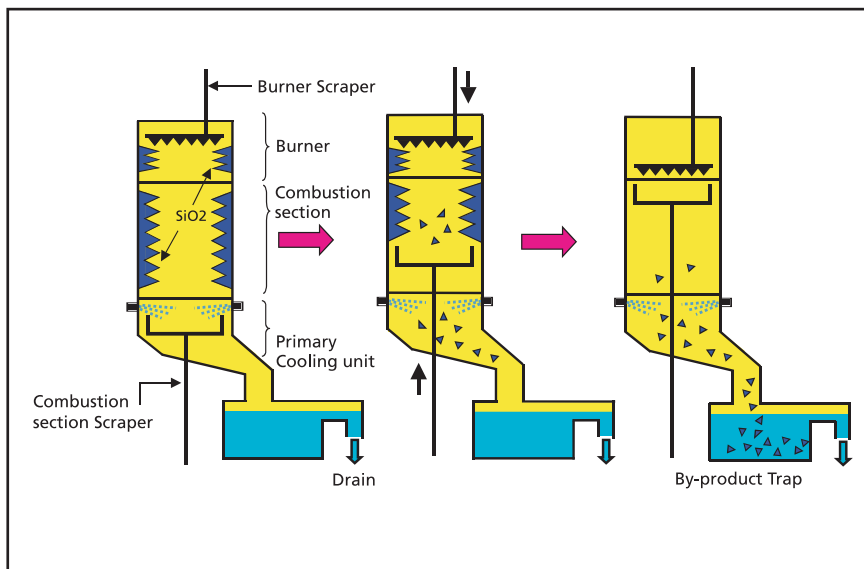
Global environmental regulations concerning **PFC-Gases** are becoming more and more stringent. For that reason EBARA has introduced a redesigned **Abatement System, the GDC 250 (Gas Decomposition by Combustion)**. It is a Burner-Washer Combination optimised to decompose PFC waste gases from Semiconductor production Fabs to an unprecedented low level. The heart of the device is a patented burner achieving utmost efficiency in decomposing the incoming gases, see fig. 1 (System Flow Chart). The extremely high temperature in the burner allows to destroy even CF_4 to a level lower than 1ppm. Up to 4 separate gas inlet lines allow for a total flow of 250 slm (Standard Litre per Minute).

The Combustion Head is followed by a Rapid Gas Cooling Unit to freeze molecular interactions and to fall out particulate. Downstream then follows a 2 stage Water Scrubbing Unit to remove even further solid by-product.



Special Focus of Design were given on

- **High Efficiency** (e.g. >99% for PFCs), see table 1 (Gas Abatement Data). Values equal or better than required by TLV-TWA are achieved.
- **Highest Standards of Safety** to eliminate any risks for operators and environment.
- **Lowest Cost of Ownership** through low utility costs, see table 2 (GDC 250 specification) and by long maintenance intervals.
- **High grade of Usability** by using especially designed **Corrosion Resistant Material**. At the Burner-Combustion Unit a mechanized **Scraper System** allows for cleaning the condensate avoiding the time-consuming opening of that unit, see fig. 2 (Scraper Unit). Customers have the choice between a **Variety of Burner Gases** such as LNG, Propane or Hydrogen.
- Further cost savings during periods of downtime, when switching the system in an **Idle Mode**.
- **Best possible reduction of Nitrogen Oxides, NO_x**, by small amounts of Purge Gas necessary. That is especially true when using EBARA Dry Pumps with their small amounts of N₂-purge required



Process-Gas Abatement System GDC 250

Gas Abatement Data

Gases	Inlet Gas Conc. (Efficiency)	Outlet Gas Conc.	TLV-TWA
SiH ₄	Below LEL*	<5 ppm	5 ppm
TEOS	Below LEL*	<10 ppm	10 ppm
Other gases (NH ₃ etc.)	Below LEL*	<TLV-TWA	
ClF ₃ **	7500 ppm	<0.1 ppm (>99,9%)	0.1 ppm
NF ₃	4,5%	<1 ppm (>99%)	10 ppm
C ₂ F ₆ **	3%	<1 ppm (>99%)	-
CF ₄ **	1%	<1 ppm (>99%)*	-

* Lower Explosive Limit

** Efficiency depends on Gas condition

*** High Fuel Mode

A variety of options are available adding value for the customer such as

- **Fan Scrubber Unit** to remove solid particulate from gas stream even further
- **Heater on Inlet Line** to prevent condensation
- **Air Purge Unit** to keep exhaust line dry
- **Drain Water Pump** for elevation of waste water
- **Fuel Leak Sensor**

Process-Gas Abatement System GDC 250

Technical Data	GDC 250 SA (Natural gas fuel)	GDC 250 SP (Propane gas fuel)	GDC 250 SH (H ₂ gas fuel)
Maximum Flow Rate	250 l/min		
Inlet port	NW 40 x 4 Port (62 l/min in max., gas flow per a port)		
Dimension in mm	900 (w) x 900 (d) x 1800 (h)		
Weight	550 kg		
Power supply	Utility: 1.5 kVA (consumption: 0.8 kVA), single phase 230VAC		
Fuel type	13A Natural gas	Propane gas	Hydrogen
Fuel*	14 [26] l/min	6 [11] l/min	35 [80] l/min
Oxygen*	20 [58] l/min	21 [55] l/min	12 [40] l/min
Air*	140 [100] l/min	140 [100] l/min	140 [100] l/min
Nitrogen	38 l/min (during operation) 100 l/min (during shut down)		
City Water	9 l/min		

* Values in brackets, [], show consumption when abating CF₄.

Ordering Data Series Process-Gas-Abatement System GDC 250

1	GDC 250 SA	840-GDC2-2-SA0-00-00	Process-Gas-Abatement System GDC 250 SA
2	GDC 250 SP	840-GDC2-2-SP0-00-00	Process-Gas-Abatement System GDC 250 SP
3	GDC 250 SH	840-GDC2-2-SH0-00-00	Process-Gas-Abatement System GDC 250 SH



Ebara's GCR abatement systems cleanly and efficiently remove carbon monoxide and PFC gases from ashing and oxide etch semiconductor waste streams. The standard GCR model targets CO gases using a high temperature oxidation path. PFC's such as CF₄ are decomposed using an optional metal catalyst substrate. High destruction efficiency is accomplished by maximizing the gas residence time inside the high temperature reactor. Two GCR sizes are available to handle a variety of gas loads:

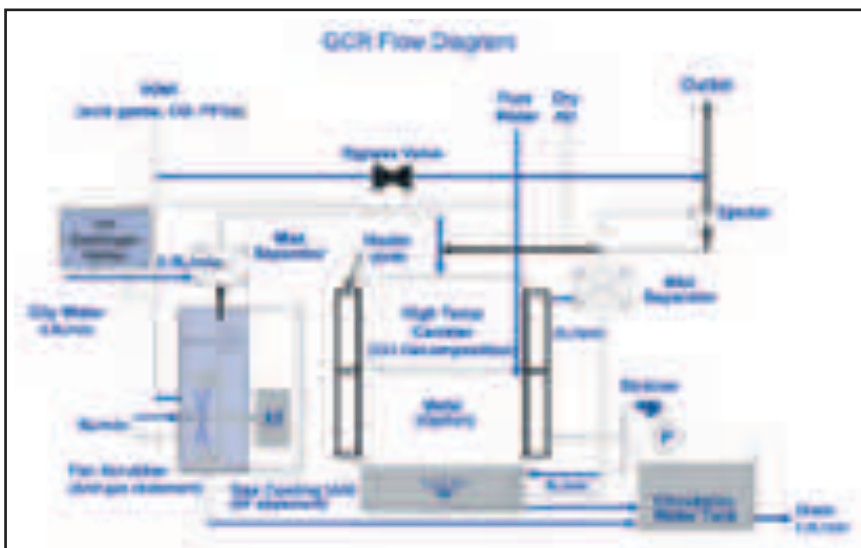
- GCR 120 (max flow 120 SLM at the inlet)
- GCR 250 (max flow 250 SLM at the inlet)

Technical Characteristics

- High efficiency abatement for acid gases and CO, PFC gases
- High ability to remove by-products
- Compact design
- Dimensions: 47.2"W x 23.6"D x 70.8"H
- Superior safety system
- Available with standard catalyst canister
- Optional reactor for >95 % abatement of PFCs

Customer Benefits

- High efficiency for acid gases, CO
- Low running cost - chemical resin canister not required for CO
- Engineered for maximum uptime
- PFC abatement capability (option)
- Ion exchange gas sensor (option)
- SEMI-S2/CE compliance (available Q2 2005)



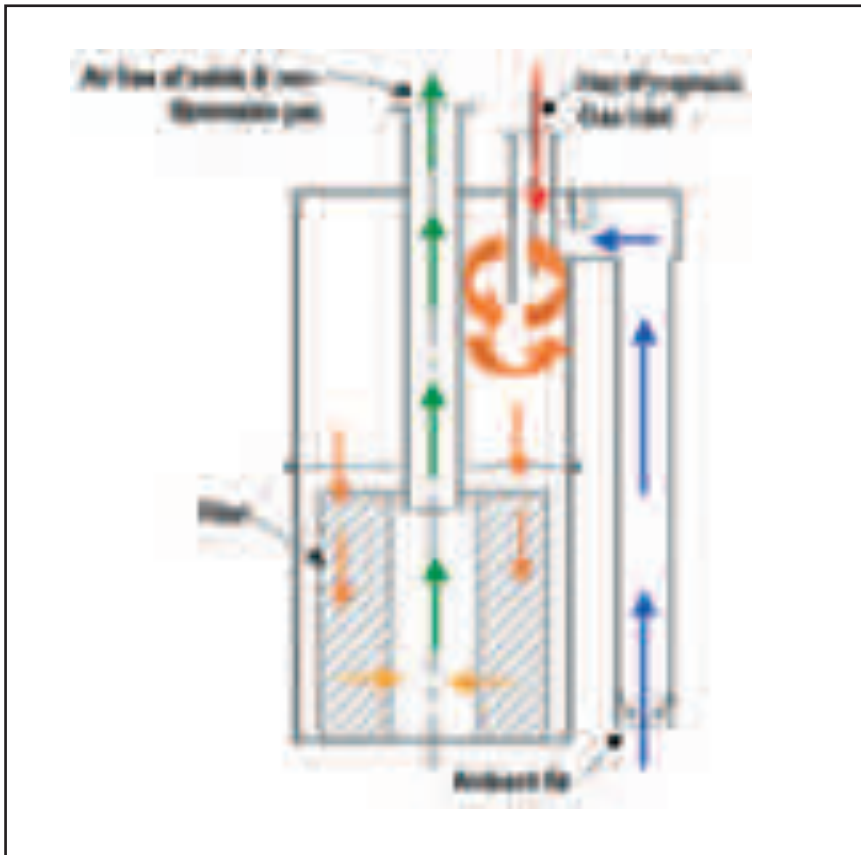
Specification GCR 120

		Oxide Etch / Acid Gases, CO	Oxide Etch / Acid Gases, CO, PFCS
Maximum Flow Rate	l/min.	120	120
Inlet PFCs Ceoncentration	N/A	N/A	<0.5
Power	kW	8 kW (consumption 6 kW)	8 kW (consumption 6 kW)
Dry Air	l/min	120	120
City Water	l/min.	4.5	4.5
Pure Water	l/min.	N/A	5
Decomposition temp	°C	750~800	750~800

Ordering Data Series GCR 120

1

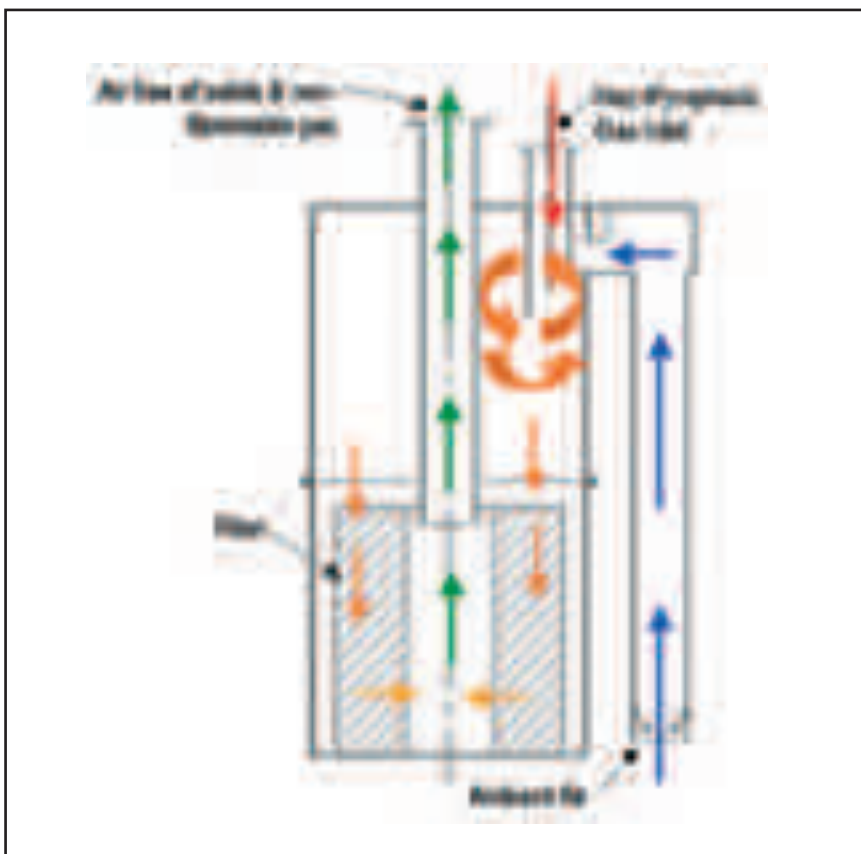
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S.DOC

Technical Characteristics

- Silane. Dynamic Oxidation Chamber
- Process flows up to 100 slm
- >99% Silane destructions
- >99% solids collection
- Low airflow interlock to shut off or bypass gas inlet(s)
- Cabinet exhaust for secondary containment
- No cooling water, No fuel gas
- Smallest footprint



E.DOC-SC

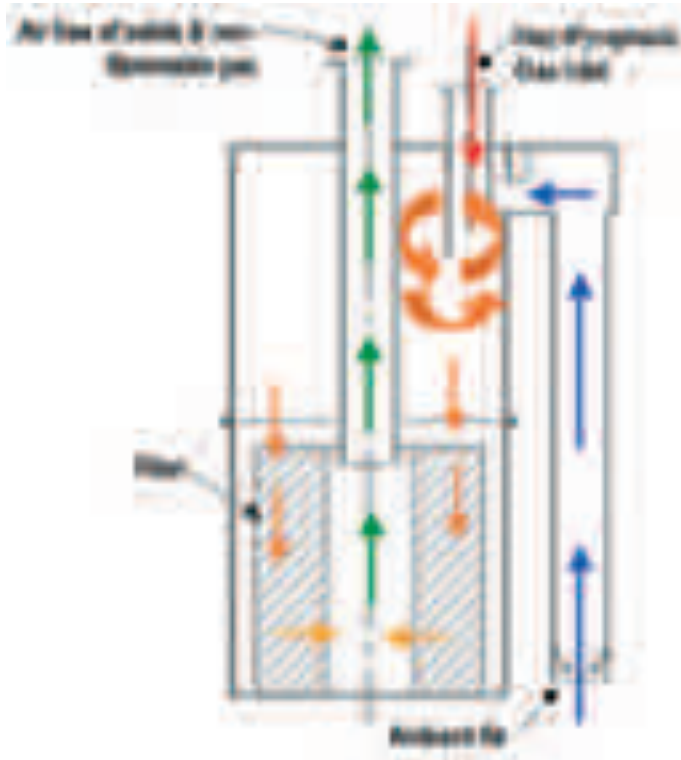
Technical Characteristics

- Two primary functions:
Dynamic Oxidation
Water Scrubber
- Flexibility
- Innovative solids handling
- Minimal water usage
- Safety
- Maximum uptime
- Ease of maintenance
- Fully enclosed cabinet

E.DOC-TH

Technical Characteristics

- Three primary functions:
Heater
Dynamic Oxidation
Water Scrubber
- Dual electric thermal unit,
up to 1100 C
- Dual function water spray
- Reverse flow scrubber
- Central cleaning mechanism
- Ease of maintenance
- Minimal downtime

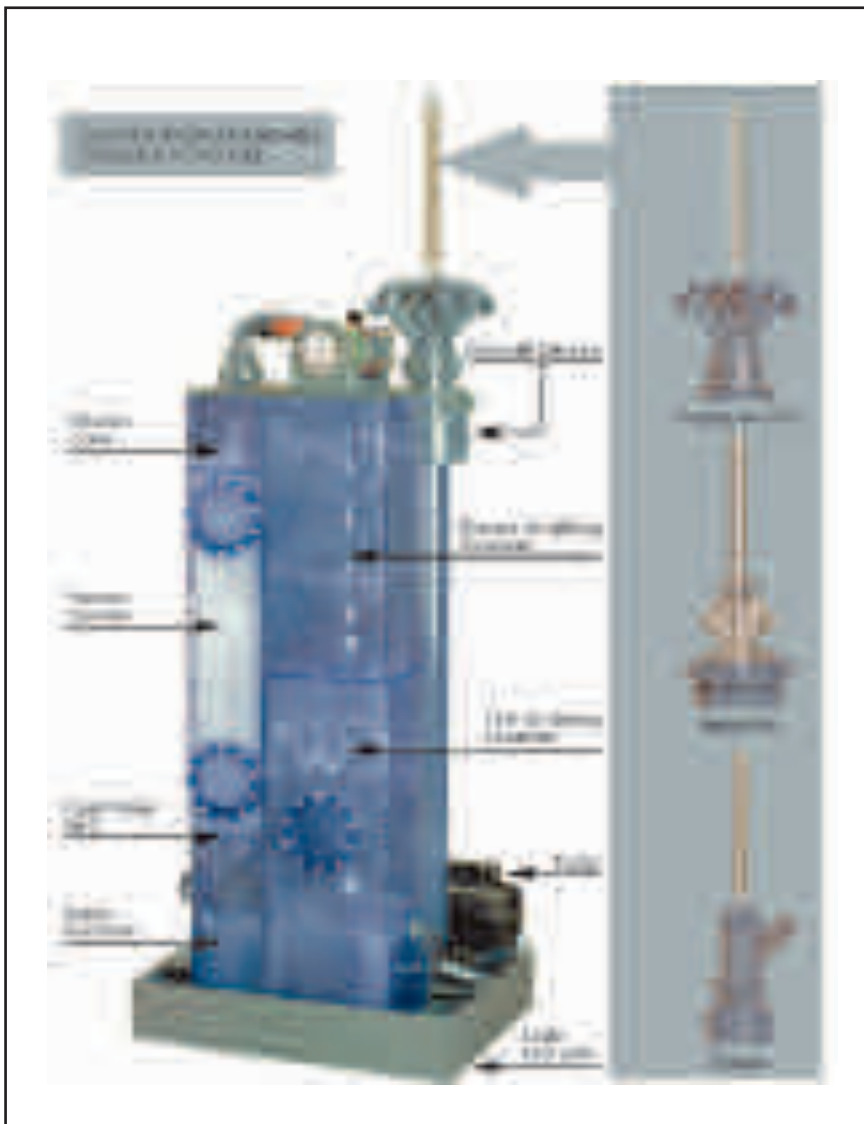


Ordering Data Pure Air Systems

1

2

3



Technical Characteristics

- Zero scrubber related process tool downtime
- Max. flow rate of input gas is 600SLM
- >99.999% removal of water soluble gases
- Patented non-clogging gas inlet device
- Automatic Inlet Plunger
- High flow spray chambers
- Unique packed column design
- PLC based scrubber control box
- Dry contact tool interface / interlock
- "Standby mode" reduces water consumption to less than 1 % of standard usage [~2GPM to ~1 GPH].

Cyclone Details

Gas Inlet Devices

Patent gas inlet devices minimize rate of restriction and automatic gas inlet plunger removes restrictions without process interruptions

First Scrubbing Chamber

Coarse spray, high flow nozzle coats chamber and removes bulk impurities

Pump

Corrosion resistant high output and long life recirculates 35 GPM

Small Foot Print

24 1/2" x 32 1/2"

Sump Geometry

Unique pump input, drain and fresh water input locations prevent foaming, sediment and minimize water use

Fresh Water Input

Strategic position increases efficiency minimizes water use and eliminates foam

Packed Column

The final polish. Packing requires no maintenance or replacement

Eductor Cone

Keeps exhaust line at slightly negative pressure (a nominal draw of 1-2" of water)

Target Applications / Gases

EPI

- Hydrogen
- Chlorosilanes
- Hydrogen Chloride

Poly Etch / CVD

- Fluorosilanes
- Silicon Nitride
- TEOS
- Ammonia
- Hydrogen Bromide

Metal Etch

- Chlorine
- Hydrogen Chloride
- Boron Trichloride

Ordering Data Airgard – Cyclone

1

2



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